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Comments on Human Interrelations[1]

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TODAY YOU have come here to consider the human factor in dietetics. It is noteworthy that your emphasis on this occasion is not with the data of your science or the concepts of your discipline. Rather your emphasis is upon the fluctuating and pulsating forces that constitute yourselves, the people you serve, and indeed the society of which you are a part and which in itself is a part of you. Flowing within the range of tangible to intangible, definable to indefinite, conscious to unconscious, from the recognizable to that outside of one's awareness, these forces are real, genuine, and active. They are the characteristics, the very essence of human behavior.

In asking me to meet with you today, your committee talked with me at length about your wish for knowledge and for practical help in understanding interpersonal relationships. Repeatedly the committee said, "We want to know how we can work effectively with other people; we want to know how people relate to each other." Obviously this is a large order for a single paper and beyond whatever theoretical ideas are available, there must be the translation of concepts one might learn about behavior, into action. Even for the person most skilled in the application of our present state of knowledge of human relationships, the art of relating to human need constitutes an additional task. This task is, by no means, executed with ease in every situation.

But despite your request, you are far from novices in the field of human interrelationships. All of you are actively coping with the problem of translating your body of basic nutritional concepts into applied uses, making the adaptations necessary for the given situation, finding ways to use the facts you accumulated, and using the techniques you learned to add to your total body of practice. Perusal of the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION for the years 1952 to 1957 brings vividly into focus your concern as a professional organization with the necessity of understanding human beings through whom you would earn a living consistent with your work motivation and capacity. In this five-year span the JOURNAL carried nine articles by psychologists, social workers, and psychiatrists concerned either with the patient as the focus of the dietitian's attention or with the complex meanings human beings attach to food which facilitate or interfere with the sustaining of nutritional care. There were seven articles by similar specialists on details for handling the interpersonal relationships between the patient and the dietitian ("how-to" articles) and fourteen articles in the personnel field ranging from problems of administration to supervision of all personnel, including the kitchen and service employees. These fourteen articles contained discussion of such facets of work as the place of the labor union in hospital systems and of job orientation and education, as well as outlines for developing executive ability and for reducing the irritability of the dietitian. All thirty of these articles stress the importance of the human factor, of providing a good communication system to work both with the patient and the employees; all the articles regard as paramount the personalities of the people involved.

Perhaps the most bewildering of the phenomena involved in human interrelationships are derived from the nature of the complexity of human capacity and motivation. This complexity only recently, over the past hundred years, has been subjected to systematic scientific exploration. What we have discovered and what we can predict as discoverable are complicated as the universe itself.

Multiple Motivation

The complexity of human capacity and motivation need not overwhelm us, but it does demand that we learn a great deal about ourselves and others. Whereas we would like to think that all human behavior is logical and that everyone sees each situation with equal clarity and like interpretation,

[1] Presented before the 24th Annual Meeting of the Pennsylvania Dietetic Association on April 25, 1957, in Pittsburgh.

this is a wish that is never realized. Human behavior is always multiple motivated and determined. It is seldom that a single act of a human being has only a single meaning. Nutritionists who must face one of the most basic human drives, that of hunger with its components of appetite and its range from pleasure to anorexia or to outright disgust, know this very well.

A clerk in one of our department stores recently urged me to purchase three jars of grasshoppers. "Such a delicacy, madam—like an aperitif. They will give your next party that unique elegance—and so inexpensive." Her motive was to sell, to experience success in her work. She approached her task through the use of a fantasy in which she tried to get me to participate; stimulated by her fantasy, I might think how much this appetizer would encourage my guests to praise the food that I might serve. She made an effort to provoke my competitive and status drives, then attempted to quiet any misgivings about the sober use of food and money by a reference to the socially approved attitudes of Yankee thrift. Such a bargain indeed, and such a reversal of the "good solid American food" concept! To be so wealthy, captivating, or capricious as to delight my guests with such inconsequential edible trivia! But she could not know about the multiple meanings of grasshoppers to me—from hundreds of dissections of the "pickled beasties" in my biology classes to the pictures that loomed before my eyes of total destruction of growing fields devastated by grasshopper hordes in my native home in the Middle West. And clearly, we did not communicate harmoniously in regard to the concept of "inexpensive."

As a first point then, essential to the understanding of the people with whom we work, human behavior is indeed multiple motivated. Each act derives from many sources and at the same time expresses or symbolizes many things.

Take for example the word *Mary*; if one hears it spoken one may think of a female person in our culture, or the act of becoming a marital partner, or the description of a gay and joyous holiday occasion. The sound symbol is essentially the same or only subtly different, but the meanings and how one reacts are vastly different.[2] Much learning and discrimination must have taken place for most of us to respond correctly to such an auditory stimulus. Or another example: the word *dishwasher*, a word far too common to the ears of dietitians. For most of you, it connotes the opposite value from the value of the nutritionist or the mother, the maker and giver of food. It has very little status, it implies no skill, it brings up images of dealing with unpleasant leftovers. It has little of the service motive related to it. To a lay person, it is likely to remind him of competitive battles with brothers or sisters as to which one was assigned to be the dishwasher after each evening meal, and whether Mother or someone else really realized that the task of the dishwasher is much harder than that of the dishwiper. For many, many people it is associated with procrastination to the point of punishment. Thus many supervisors think of themselves as having to be disciplinarians for dishwashers, which may or may not be true. Dishwashing then is a hazard, an act which can be used by the subordinate to provoke the most intense frustration in the dietitian, perhaps to the extent that one will have to become the dishwasher oneself. Little wonder that the dietitian then takes as a personal insult the unreliable cook or dishwasher who is apt to have little investment in service motives. The dishwasher is certain he will not be offered much prestige nor will this task offer him less deprivation than he has handled either with submission or rebellion most of his life. His behavior, too, is multiple motivated, and his acts are unlikely to be motivated by the same needs and intellectual reasoning that impels the dietitian. But both his feelings and hers about washing dishes derive from many sources. Dishwashing as a symbol relates many things which these two people may or may not hold in common. How each feels about it will affect the ability of each to inter-relate.

[2] The author is indebted for the specific additions to the understanding of the use of word and non-verbal symbols here and in footnote 3 to Drs. Henry Lee Smith, Jr. (linguistics) and Ray L. Birdwhistell (kinesics) of the Department of Anthropology and Linguistics, University of Buffalo.

Capability of Growth

Each of us is endowed from birth with physical, intellectual, and emotional characteristics, all of which overlap in all of us, but the range of these, in the comparison of one person with another, may differ. As a second point then, each of us is endowed from birth with physical, intellectual, and emotional characteristics, all of which have the capacity for growth. Growth implies capacity and potentiality. Moreover, it means that all the patterns of life from the life cycle of the bony structure to the life cycle of the phenomenon of curiosity and affects (feelings, such as anger) have pattern, structure, and logical growth to and through maturation. Whether these capacities have fluidity, adaptability, and freedom of their possible range will depend on what happens to them along the road of life. All of these physical, intellectual, and emotional capacities have the potentiality of health or of disease.

Further, epidemics are not confined to physical disease. Just now nutritionists are struggling with epidemics of obesity and alcoholism. These epidemics have their etiology not only in the given individual, but also in the group unit which in our society is the individual and his family. In addition, the stresses and attitudes of the culture itself contribute etiologic factors. The problem of keeping human capacities in a medium which permits both maximum growth

and at the same time a civilized state of being is indeed a tough one. We could not live in a society that did not demand some denial of satisfaction of curiosity drives.

Thus we teach our children to overlook people's defects, to keep their hands and eyes off other people's property. But, when at the same time we teach them by precept, act, or anger and impatience, not only not to touch for reasons of social mores but also to be afraid of things they should not touch, or to be afraid that they will be punished if they are even curious about things they cannot help seeing, hearing, or feeling, it is not surprising that we find adult patients who feel that only certain foods are "safe" and that they "must not touch" others.

Some time ago a patient had a dream which contained as one fragment a picture of a table on which were luscious red tomatoes. One had been sliced and the slices left untouched until they had withered. When I asked the patient what occurred to him about the tomatoes, he reported his pleasure in raising and eating tomatoes as a child and his irritation with his wife who never serves them. He recently asked her why she does not serve them. She replied that she does not like them. When he pushed the matter a little further, she confessed that she, now age thirty-seven, has never tasted a raw tomato. What is irrational here, of course, is that catsup and other tomato products are easy to eat. With some embarrassment she told her husband to his amazement that she is "afraid" of tomatoes, that is, afraid of any food which was strange or unapproved by her mother in her childhood. Her intellectual and emotional growth was obviously stunted (inhibited) in her formative years. Since the husband is a man of cosmopolitan experience, you can imagine that there is stress around food in this home and battles about what will be served. It is only a step further to guess that the tomatoes in the dream are a symbol not only of the battle with his wife, but of his longing for the freedom of his childhood and the less tension about food served at his mother's table. And from this it is only one step more to think about what kinds of mothers these two people had, which one was more relaxed and giving about food, which one inspired greater trust and likewise greater freedom to be curious in healthy ways. For the psychiatrist this story is not complete without wondering how it happened that these two people fell in love and married, what differences and likenesses motivated each, but these are problems of therapy beyond the scope of this paper. These examples illustrate our first two points: that we are endowed with complex capacities and that these are capable of growth.

Reality Testing

A third principle useful to our efforts to understand the people with whom we work is the realization that out of the growth and development of the complex capacities with which we are endowed there must develop a part of the personality that is able to test the reality correctly. We are pushed by our basic drives, such as those for hunger and warmth, driven by capacities to feel a range of emotions from compassion, pity, benevolence, and love through the range of anxieties to mistrust, anger, and frankly crystallized hate. We must relate not only to these inner real forces but also those equally real factors and forces which constitute the physical world and society. In order to handle these many stimuli, a part of the human being must become differentiated (separate or grow out) from raw basic need and from our capacity to fantasy and imagine. This portion has to form that part of the self which can constantly test and evaluate reality. This reality-testing portion has many functions (1). The ability to perform these functions compatible with any given age level of a person's life span is a measure of the maturity of that person. The reality-testing portion must be able to perceive and distinguish between various internal stimuli. Specifically, it must tell the difference between a need to eat because of nutritional needs and because one is in need of social companionship. Either may be a good reason for eating, but if one knows both the motivation and the nature of the inner stimulus one can direct one's energies toward the most suitable solution.

The reality-testing portion must further learn to perceive and distinguish between internal and external stimuli; when, for instance, is one angry because one is over-tired, and when is one angry because one has truly been depreciated by another person, possibly also angry indeed when that person too is over-tired? Likewise, the reality-testing portion has to mediate between one's impulses and the external world and vice-versa. A mother may have the impulse to spoon-feed the smearing three-year-old who bubbles at messes and enjoys food widely distributed over everything within the reach of his hands. She may have to use her reality-testing portion to restrain her impulses to restrict or over-punish. Or, on the other hand, she may have to use her reality-testing ability to restrain an equally strong impulse to throw up her hands and let the child smear everywhere. Her reality-testing portion of her total functions thus mediates the impulse under the guidance of the best intellect and the emotion that is available to motherhood, and that helps her to gauge (to test the reality) what on her part will provide her child with the most secure feeding experience at ages three or thirteen.

Likewise, the dietitian must test the level of the patient's illness and try to use her knowledge of human growth and human responses to illness to determine which foods prepared in what manner will help him to return from the regression of illness to the more mature state of health. In the same

fashion the reality-testing portion well developed would have protected the woman from her fear of tomatoes; it would have let her explore the external object, examine it, try it out, and draw her own conclusions in the light of her own good sense and the available food facts of this society. Or again, the reality-testing portion must protect a person—say, the dietitian—from too many pressures of a needful world, so that she might sometimes say "no" to some requests that might drain her of so much energy that she could not do her work with pride and achievement; or her reality-testing part might make her feel correct in turning to other sources for help with some of her administrative or procurement problems if such were indicated. There are many functions of this reality-testing portion of the person which must develop, be flexible, and grow throughout the life span if the individual is going to be able to meet the course of life in a reasonably comfortable and mature fashion.

Anxiety as a Symptom

One of the functions of the reality-testing portion of the personality which applies closely to interpersonal relations is the function of recognizing that characteristic of human behavior known as anxiety. Anxiety is essential to life. Anxiety means a state of unrest, a feeling of disequilibrium or of uncomfortable tension, and it is an indicator to the person that something needs examination and resolution. But many people are unable to think of anxiety as a signal or a symptom. They become afraid of the tension itself until it becomes overwhelming, whereupon minor to major disasters ensue. Anxiety arises naturally when one is insecure, deprived, frustrated, frightened. It arises when one feels threatened by any of various situations from competition with someone for the last word, to over-competition with one's own conscience about doing something perfectly, regardless of the reality that may or may not permit a perfect job. It arises often when one is angry. It appears often without awareness on our parts, "is there before we know it," and suddenly must be handled. The sooner the reality-testing portion of the individual recognizes the anxiety, thinks of it as a signal, and begins searching for the cause of the disequilibrium and its remedy, the sooner the organism can function smoothly again.

For the dietitian, this may mean allowing for signs of anxiety in any patient who presents a feeding problem so that she modulates her dietary instruction to a pace that will either help alleviate the anxiety or can be absorbed in the presence of the anxiety. Thus, the patient may ask you to repeat your instructions many times. The chances are that the patient, unaware of how anxious or frightened he is inside himself, is trying to say to you, "Look—I can't hear you because I am anxious. Please have patience with me and tell me until I am reassured enough by your patience and calmness that I can hear." The dietitian may not treat the causes of the anxiety, but she may control the "dosage" of the dietary information. Thus she can offer it gradually, slowly, clearly, and repeatedly so that the patient can hear it while he is also engaged in the task of handling his anxiety by use of his own particular patterns, developed in him over his own life span and by his own experiences.

It may occur to the dietitian that some kind of anxiety either directly felt or expressed in nonconforming behavior is inherent in the action of any employee who continuously shows up late for work, or who insists on overworking and arousing the guilt of all the other workers and perhaps the ire of the union steward. This does not mean that the dietitian will be a psychiatrist, or that she will promote health in all her employees. It may mean that she will look for ways to alleviate stress in her organization from manipulation of foods and physicians to shifting the functions of staff, or if need be, firing someone. What is really important is for the nutritionist to realize that anxiety is a universal human characteristic, that it will be in everyone with whom she works and within herself, so that she does not feel frightened or frustrated when problems occur within her working relationships with human beings.

Integrating the Past and Present

A second characteristic of the reality-testing portion of the personality is that ability to integrate the experience of the past with the experience of the present. Again, to return to the tomato example, the experience of the past with the mother who was afraid of tomatoes is not integrated with the present-day knowledge of foods which is available to this woman through her own training as a kindergarten teacher and through that of her college-educated and widely travelled husband. She uses the past to her disadvantage here. A gap exists in her attitudes toward food. This gap seriously disturbs her intimate interpersonal relations that operate widely in the food and love-giving functions of a mother.

Or to return to the dishwashing example: many dietitians can use the competitive, wrangling, disciplinary aspects of childhood dishwashing episodes to good advantage with gentle teasing of the grumbling male dishwasher without calling attention to his immaturity or recognizing his probable conflict. She finds ways to increase his personnel benefits and his job security. Or, basing her action on her integration of her past experience with her present experience, she may observe that this particular dishwasher does have some kind of problem around work, that he is not well motivated for a specific job. Remembering that one rebellious child could sometimes demoralize a household, the dietitian may then use her past experience to counsel herself

wisely and ask for his transfer. Or, if she is the administrator, she may fire this particular employee before he destroys the morale of her kitchen and preparation unit.

Again, in another area of her interpersonal relations, the dietitian may discover that some physician always by-passes her and depreciates her efforts. He sends the patient to her and, at the same time, gives the patient contradictory advice. Here, again, she may use her reactions to past experiences of depreciation, not to get angry, or at least not to stay so angry that she cannot find other work outlets within her own or another setting. Instead, she may recognize the depreciation and understand that the doctor must have some problem of his own in this sphere of which he may not even be conscious, and which more than likely she cannot alter. She then goes about modulating her own effort and goals within this limitation imposed by the intra- and interpersonal factors which she recognizes. She may try to work with the doctor, or failing this, may work with the patient, referring the patient constantly back to the doctor. True she may do a less good job of dietetics than that of which she is capable, but she may do a more sensible and sensitive job of human relations which will permit less anxiety on the part of the patient. Moreover, she may bring about better use by the patient of the dietitian's ideas when the patient is more healthy and less needful of the doctor. Certainly, if she recognizes that both she and the doctor may have needs to be "first" with the patient, that both of them want to feel worthy, and that depreciation is a device to increase adequacy which may be used by human beings of either sex, she will accept the limitations of this particular dietetic possibility, with less stress for herself, leaving more of her energies available for the places in which her skill as a specialist is eagerly sought.

Reality-Testing to Relieve Tensions

This third concept of human behavior that may help our functioning in interpersonal relationships can be summarized then by saying that each person by growth develops a part of his complex capacity into a reality-testing portion. This portion has the functions of recognizing stimuli from within and without, including anxiety in its many forms, of perceiving the nature of these stimuli, of distinguishing their source in present or past experience. It also has the function of mediating between those stimuli which arise from within and those from the external world and vice versa. It functions further to integrate the experience of the past with experience of the present. The purpose of the reality-testing portion is mastery and relief of tensions. It must provide correct interpretation of stimuli. Finally, using these data, it controls, modulates, and executes voluntary physical, intellectual, and emotional behavior appropriate to the situation. To be appropriate, the resulting actions will obviously be dependent on the age of the person (the hand of a child cannot be expected to span an octave, but that of an adult can), the number of experiences to which he has been exposed correctly as he has been growing up, the range of experience compatible with his capacities that he has been permitted to have with adequate satisfactions, and without undue shame or guilt when he has experienced failure. To a large extent, the degree of integration that one has is again a measure of the maturity of that person (2).

Awareness

A fourth principle in understanding people with whom we work as well as ourselves, is the principle of awareness. Awareness exists in a human individual at many levels; the degree of awareness that a given person has at a given moment will depend on multiple factors. It will depend on the number of stimuli in the precise time unit in the immediate environment and the number of stimuli arising from within the person in the same time unit. It will depend on the level of attention that one has. For example, the patient who is so preoccupied with pain from an acute gall bladder attack, or has a drugged and heavy feeling on awakening from some dosages of sedation, or is angry because he has had a sleepless night, may be unaware of his breakfast tray which has been left standing on his bedside table. Various levels of awareness also occur unassociated with illness, such as the total absorption of a child in a story so that the mother's call to dinner was not heard, or the provocative use of unawareness to express the emotion of hostility of the typical he-she breakfast-and-morning-newspaper cartoon.

But, assuming that the individual is fully conscious, his degree of awareness will again depend on a number of factors.

Whether experience leads to constructive knowing depends on many factors again. Learning can be inhibited if an experience out of which one could learn is frustrating, anger- or anxiety-producing, or so painful that one can experience only the pain. Having knowledge, on the other hand, without experience limits its usefulness and practicability. Conscious awareness also rests on experience as differentiated from learning, whether or not the one has occurred without the other, with complementing the other, or as in the case of the experience with mother's attitude toward tomatoes, experience drove learning further away. To summarize again, conscious awareness then rests on: the number of stimuli; the timing of them; the degree of attention; the characteristics of the phenomenon; experience; learning; and other elements which I shall not discuss here.

But there is an additional component; what is

known also depends on what is only partially known or is totally unknown, the preconscious and unconscious component of each person. There is a great deal in human experience of which we are only partially aware but do not really know. These are the impulses, feelings, or experiences that have never been conscious to us, or which range from seeming so trivial as to be utterly inconsequential to so painful that we must forget them for the sake of sanity and peace of mind. Yet from time to time, these things influence our awareness. You have thousands of examples of this in your daily practice and in your writings; most food dislikes are based on ignorance, that is, lack of conscious knowledge or on taboos of culture or religion or on the private taboos or prejudices of one's mother, as again in the tomato instance. What is important is that one has often forgotten the reason for the food taboo, but not the depreciation, the punishment, the fear, and the repression of curiosity that went into the enforcement of the taboo. Thus one now transmits to the food itself the feeling that belonged to the interpersonal relationship in which one learned the taboo.

It becomes very clear, then, that our preceding principle, the third one, reality-testing, may be hampered a little or a great deal by the degree of awareness the person has and in addition by that which is not quite conscious or is totally unconscious in his attitudes and feelings. We are capable of seeing, perceiving, and feeling below the level of conscious awareness a great deal more than we permit ourselves to know consciously for good and bad reasons of social conformity. Again, it is not that you should try necessarily to cope with the vast field of the known and the unknown, the range or limits of awareness in the given person with whom you are dealing. Rather, you should know that the known and unknown are there in the dishwasher, the doctor, the assistant dietitian, and in you, and must be taken into account in accomplishing transactions that at the conscious and rational level seem totally reasonable and very simple to transact.

Interpersonal Relations

Let us think now about the processes and problems that characterize interaction of individuals. An interpersonal relationship can be said to occur when any exchange of experience takes place between two or more people in which both are participant in and to the experience, in which the experience is meaningful to both and could not have occurred were the individual to be alone in the situation. Two components of this definition are to be noted: one, that the experienced interaction be meaningful, whether the meaning is constructive or destructive; second, that two or more people must be involved. One can sit in the presence of another and even think about the other without interacting. Likewise, one can sit alone and day-dream or visualize an interaction, but one must always keep in mind that under such circumstances an interaction does not occur. We use fantasy about interaction as one of our most important ways of handling need and anxieties in our lives. We gain awareness of our own assets, for example, by reliving in the day-dream a successful interaction from which we can then plan, in our mind's eyes, ways to make future interactions equally or more successful. Or having handled an interpersonal relationship awkwardly, we can fantasy the relationship again or ease our pain by doing it better in fantasy, or ease our pain by self-evaluation or self-condemnation and self-punishment.

To return to an interpersonal relationship, rather than the day-dream about one, we note that it is a common, shared, meaningful experience in which the intellectual and usually the physical and emotional capacities of all persons in the interaction are involved. The degree to which each of these capacities are involved will depend on the multiple factors we discussed as our first point in this paper, namely, that human behavior for all individuals is multiple motivated.

It is unlikely, for instance, that the dishwasher in a kitchen which serves five thousand meals a day will be as much interested in a conversation with the dietitian about the importance of a therapeutic diet for a cardiac patient as he might be in a conversation with her about things in which his interest tends to be more invested, namely, from baseball to his misfortune in having married a wife who refuses to support him. Again, I am not saying that she should sympathize with or condemn, much less treat his problems, but rather that she should be aware of the levels of his reality, should relate herself to his awareness of his realities and to the ways in which she may alter them more in line with what she sees as his job.

Your committee talked to me about Joe Blow, the cook or the dishwasher who "doesn't show"; frustrating as this is, the reason that he does not "show" may have much more to do with his immaturity which influences his use of a work situation and his interpretation of work reality than it has to do with wishing to create anger and to hurt the given dietitian. True, he may be aware that it will make the dietitian angry, but it is unlikely that he wishes to hurt that person, unless she has promoted some sort of competitive or stressful relationship between herself and the specific Joe Blow. More than likely he feels that all women are angry when little boys do not show up, as his mother was. Why should he, a man grown in physical stature, which of course makes him think he is a man and thus gives him "privileges," now make that little boy, which is really what he is inside the man's stature, come to "school" on time, school now being the job? This example illustrates to some extent the point that an

interpersonal relationship is a common, shared, meaningful experience between two or more people in which the intellectual, physical, and emotional capacities are involved. Joe Blow's mind is as reasonable to him as the dietitian's executive mind is to her. His gender and stature give him certain attitudes; her adultness and maturity give her others; her awareness that she is a woman and that many men react unfavorably to both employers and women affects this relationship. On the emotional side, he has his small boy needs to be cared for, but having been deprived, probably as much in the area of food and love as any area, these needs manifest themselves by untrustworthiness and rebellion. Her disinterest in his emotional needs stems from the fact that hers are invested in good therapeutic care for the sake of the patient. Thus many personal factors of each person are involved in the task of getting the dishes washed.

The Many Facets of Interpersonal Relations

This means then that an interpersonal relationship is a very complicated phenomenon, which certainly you do not need me to tell you. What is more important is to remind you of its many-faceted nature. Further, communication occurs in human beings at many levels and in many ways besides the words we say to one another. Communication occurs in the context in which words are put and the various overtones attached to them in our society. Words of the same spelling are used both for worshiping and for swearing. Take the example of an obese patient, who is convinced that his obesity is congenital since all of the members of his family are overweight. He has some need to maintain this idea and is unable to accept that he is overeating. When his defenses are this high and when he is learning the facts about calories, it is better to listen to his rationalization about his family pattern at the same time that you instruct him in a low-calorie diet. Eventually when he trusts you and the interpersonal relationship is established, he may think and will tell you that "all of my family were pigs." This is probably the truth but to tell him this yourself at any time in the diet therapy might drive him away from learning about himself and his health.

Further, communication occurs at many nonverbal levels, as in the tone, pitch, speed, and accent of the words themselves. Simultaneous with the words, the word-content, and the sound is the accompanying body movement.[3] "Yes, Miss Dietitian," says the assistant dietitian, shaking her head quietly, "I'll get those reports in tomorrow for sure." If you are a person of wisdom as well as knowledge, you will be less likely to develop your own brand of body language, say in the form of an ulcer, if you do not expect those reports before next week, or if you promptly institute other measures to guarantee their arrival tomorrow. You need not inquire into the motives for her probable procrastination, but you do need to observe all of the communication in the interpersonal relationship in order to facilitate your own evaluation of the realities in this interpersonal relationship. Then you can formulate your own responses as maturely and as helpfully to the goal of good patient care as you possibly can.

The wider your span of conscious awareness of what is going on in the person, yourself, and in the environment, the greater is your awareness of the complications and the pressure demands, related or unrelated, that are active in this interpersonal relationship, and the more resources you possess to handle it well. As in everything else, all things are relative in interpersonal relationships. It is often difficult for one to see how the execution of duties, which seem autonomous in themselves, influence another set of relations which also seem autonomous within themselves. Two examples come to mind.

Certainly a physician may feel that he is the person who initiates and is responsible for the patient care, hence is conducting an autonomous operation; one step in that operation consists in sending the patient to the dietitian. The dietitian's ideas might differ from the physician's concept of diet therapy, but if she thinks of her task as autonomous also, friction occurs. Sometimes a physician sensitive to his own operations and accustomed to being very individualistic and competent is utterly bewildered and no doubt angry when he discovers that the dietitian feels that he is subtly sabotaging her work. Meanwhile, the patient is thoroughly confused, trusts neither, and very little is accomplished until the communication lines are again opened.

The second example is based on the Gestalt principle that you all know, that the whole is greater than the sum of its parts. A food service operation falls through by a personnel failure; but the personnel failure may not be dependent on the food service operation but on the current stage of the labor pool in a given community. If the plant or hospital management blames this on the dietary service or the dietary service on the plant or hospital management without either knowing the part that both play in relation to the total problem, the communication either has been poorly established, relationships are not seen, or the lines of communication have become confused or clogged.

Understanding of Inter-Relatedness

Perhaps the role of awareness of inter-relatedness in all interpersonal relationships can best be illustrated by returning to the one-to-one relationships between a dietitian and her patient. Let us assume that a new patient has come now into the office of a dietitian. They begin a conversation that has as its goal the better care of the patient. Let us imagine for a

[3] See footnote 2 on page 872.

moment who else is in that room influencing this interpersonal relationship. For the patient there is certainly her concept of a mother figure, with all the attitudes that her mother had toward foods and toward getting sick. Thus there are her own attitudes plus those of her own mother or other mother figures toward the care required for this particular child in her mother's brood from one to ten. If the dietitian is a young woman, some sister figures as supporters or competitors with the patient may be in the room, too. In addition, the doctor figure is there influencing what the patient hears from the dietitian, and probably somewhere in this picture are many other influences, such as the immediate worries that the illness is causing not only the patient but also the patient's family. For the dietitian there are also other people. There is her image of herself as a professional person which includes many images built up from her teachers; there is the doctor and his attitude toward her work, how much he and the superintendent of the hospital will want or allow her to do, depending on the circumstances; there is the person that is herself when she is sick reacting to the sick person in front of her with envy, contempt, pity, or compassion; there are her colleagues, who sooner or later will learn whether she does as good a job with her patients as they do. If the patient is a woman, the dietitian may also be reacting to what in the patient reminds her of her sister or her mother and attitudes assumed from them. Quite an assortment of people are in this room that has in it the patient and the dietitian.

It is remarkable often, not how badly, but how well we do with interpersonal relationships. For most of us most of the time, the additional figures in the room are well disciplined and properly related to our current work goals through the discipline that has helped us to arrive at our present professional position. And for most of us, if we think about those less well organized attitudes of the patient which so quickly come to the fore in the regression and dependency that accompanies every illness from the simple cold to cancer, we will help that patient more. For ourselves, too, in both the situation of any one-to-one contact and equally for any group contacts, particularly where we give leadership, it is helpful to think now and then from what component parts of our own past meaningful experiences, our attitudes toward the given task have sprung.

Suggestions for Good Interpersonal Relations

Let me offer a few practical comments regarding human interaction. The first and most important is to accept how difficult and time-consuming good interpersonal relationships are. They do not come easily for anyone and require constant effort. Human beings, including ourselves, are complex. If one really knows this, one's expectations of others and of oneself are apt to be more relaxed and to have an air of on-goingness in the midst of complexity, rather than the anxiety, fear, and anger with the feeling that one is always burdened, and that a new state of emergency with the ever-present fears of cessation of the relationship exists each day.

Second, encourage yourselves to become better observers both of your own behavior and that of others. This does not mean to inquire punitively into your failures with the angry tone of many mothers, "why did you have to do that?" but rather within a frame of comfortable curiosity about what this piece of behavior was related to, what you were able to notice, and how you might react in another situation, remembering always that the next situation will be something like but not identical to the one you are currently analyzing.

Third, listen. Listen to your patient, other people with whom you work, listen to yourself. Think about what is being said not only in words, but in the content, the tone, the inflection, the rhythm of those words and their accompanying body sounds and movements. Let yourselves listen with your eyes as well as your ears and with a feeling of the worth of each human being with whom you deal, including yourself.

Fourth, read about interpersonal relationships, not with the feeling of looking for an immediate solution but to be better informed and more comfortable about the field. There are many things available on communication and interpersonal relations in the psychiatric, psychologic, and social anthropologic literature of these times, and a careful look at the humanities is often rewarding. Read, for example, about the specifics of listening.

Fifth, find ways to use every resource person within your own setting. This may mean conferences with the director or the personnel administration more often than you had planned. One always must watch that so many conferences do not occur that one has no energy left for one's own field of specialization and productive work. Nothing can be more devitalizing than getting too isolated from one's own field. But with this caution in mind, find ways both to get specialists from those in administration to those in psychiatry and anthropology not only to help you with your problems within the job, but to help you find other workers who can carry a part of your task. It is difficult to establish the need for a secretary or another laboratory technician sometimes. However, the decision on the part of a senior person that his own work can truly be more productive if he gives some of the detail to another person usually means that the money for that person can be raised. It is unlikely that it will already be in the organization's budget, but if you will work with the budget director, some way to put it there in another budget revision is apt to appear. Remember that specialists are not confined to the professions and that informing the elevator operator to tell your

guests at a conference that a certain room has been set aside for a given meeting at a given hour may be as important to the forwarding of interpersonal relations at your conference as is the specialist.

Sixth, feel free to think about yourself as a worker and the meanings of work to you. How mature are your own attitudes toward work? Is your work really a way for you to earn a reasonable living, to give expression to capacities and abilities which properly belong only to the working age of a person's life span, to focus the multiple energies that are characteristic of the human animal in a way that makes his life both reasonable and meaningful? From this will come ideas about your work and those who work for you. It is possible that your own work capacities have not yet reached their full maturation, having been delayed by many things from the fact that you still may be young in years or in ideas or in emotions to many kinds of gratuitous interventions from wars to sick and aged parents for whom one must care. But whatever may be the vicissitudes which have characterized your own experience, they do not prevent you from thinking about the meaning and use of work in your own life.

Finally, it is essential that the dietitian have sufficient human outlets and satisfactions of her own. If she is harrassed and overworked by the multiplicity of the job demands, she must find ways to get out of the impasse. One sometimes must remember that the impasse will go on, whether or not one is there. Sometimes a vacation is made much more meaningful if the week following the vacation is used not for the routine, which having gone on for two weeks will surely go on a third, and is used for visits to other departments of the institution in which one is working, for some browsing in the library, and for some undisturbed time to think about the whole job, each person in it, and their relations to its total frame of reference. But other ways to get out of the impasse must be thought about, too. One helpful suggestion (3), if it is available to you, is to live your non-working hours with healthy people, who, while you and they may need, prepare, and use food, do not make demands on you as a dietitian.

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Community Diet Course for Heart Patients

In Merced, California, last year, a course of seven lessons on low-sodium, low-calorie and low-fat, low-cholesterol diets was conducted under the sponsorship of the Merced County Heart Association. All "students" were patients sent by referral of their physicians. The course was publicized in advance in the local newspaper and on the radio, and the Heart Association sent letters to forty-five physicians located up to 40 mi. away from Merced. Nine of these physicians sent patients. The others apparently did not have patients needing this particular type of help at the time, or they may have been too far away to attend the course conveniently.

The course was started with a resumé of basic good nutrition, which was later related to each diet as it was discussed. The sessions on the individual diets were introduced by physicians who gave short lectures on the medical aspects of the diet in question. Then the dietitian made a lecture-type presentation of the dietary principles. The foods to be included and avoided were discussed as in a clinic situation, followed by a question period. At the last lesson on each diet, special foods were prepared, the patients sampled them, and the recipes were distributed. For one of the low-calorie lessons, a display of low- and high-calorie foods was arranged. Some of the foods used in these demonstrations were supplied by companies marketing dietetic foods while the rest were purchased by the Heart Association.

A handbook of diets was compiled for the patients, which included lists of "foods to avoid" and "foods to use" on each diet, meal patterns, and recipes. This handbook was supplemented by pamphlets from the Metropolitan Life Insurance Company and the Department of Agriculture.

A total of thirty-one people attended the course, with an average attendance at each lesson of between twenty and twenty-five. Many of the "students" attended all the lessons, while some came only for those pertaining to their particular diet. In addition, several employees from the dietary departments of the local hospitals attended and reported that the material was of considerable benefit to their work.

The course was considered a success by the patients, the physicians who sent patients to it, and the Heart Association, which plans not only to offer the course again next year, but to introduce a similar course in Stanislaus County, Modesto.—*Contributed by Dorothy Pederson, Merced, California.*

Nutrition Education for Children in the U.S. Since 1900—Part I[1]

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NUTRITION EDUCATION *of children belongs to the school because the school is responsible for fitting the child for society and helping him be responsible for himself and his health; the child has a right to know what to eat and why, and how it affects his health* (1).

It is the purpose of this paper to summarize those nutrition education programs contributing significantly to the historical background on which current nutrition education practice and research should depend. Only those programs which have been conducted under the auspices of schools and directed toward the school-age child will be included in this review.

It is impractical to include programs of maternal and child health in this paper. Such would be a formidable review indeed, for those programs have contributed much to the nutrition education of children in this country since as early as 1912. However, it seems appropriate at least to mention the Children's Bureau, the U. S. Public Health Service, the U. S. Office of Education, the Interagency Committee on Nutrition Education and School Lunch, Human Nutrition Research Division, the state agricultural experiment stations, and extension work. All of these and a dozen or more national professional societies and nongovernmental groups, movements, and conferences have left their mark of better nutrition through service and education for adults as well as children in the history of nutrition education in America.

Industry has played a unique role in nutrition education and special mention should go to the National Dairy Council because it is the "only industry-sponsored organization which provides a relatively large number of resident nutritionists who render service locally" (1). Their programs directed toward children and adults have immeasurably influenced the history of nutrition education continuously and with increasing effectiveness since 1915.

A few books, several research papers, and a considerable number of theses, both masters' and doctoral, and literally hundreds of popular articles have been devoted to nutrition education during the past fifty years. Nutrition education programs for children have enjoyed endorsement from public and private schools, from government and industry-sponsored agencies, and from several universities and colleges. These have undoubtedly influenced nutritional practice favorably, but few have attempted to measure their effectiveness in terms of changes made in food habits or food intakes.

When did nutrition education programs begin? Where were they popular? How did they progress? Who were some of the pioneers? What have we learned about nutrition education over the years? These are some of the questions to which attention will be given throughout this paper.

Programs between 1900 and 1920

Credit has been given to Dr. W. R. P. Emerson for conducting the first nutrition class in the United States (2). In the strict sense, this work does not qualify as a nutrition education program for children. However, its acclaimed success, which created much interest for about twelve years, may be regarded as a provocative force which caused educators to examine health education programs in terms of nutrition of children.

Emerson's class method, developed in Boston in 1908, was tried with little success some ten years

[1] Fifth Lydia J. Roberts Award Essay, read at the 39th Annual Meeting of The American Dietetic Association in Milwaukee on October 11, 1956. This Award is made possible by a grant from Gerber Products Company, Fremont, Michigan, for the purpose of encouraging historical study of nutrition. Presentation of the Award was made at the Annual Banquet of the Association on October 11, 1956, by Dan F. Gerber, President, Gerber Products Company (see JOURNAL, page 1186, December 1956).

later in Public School 64 in New York City. In evaluating efforts at the end of the first school term Hunt *et al.* (3) wrote that "no spectacular gains had been made by the children enrolled in the nutrition classes" (only 2 of the 105 enrolled were "graduated"). Even a short-term trial with the class method led to the conclusions that children should not compete with each other in weight gains, that cooperation of the home was essential, that nutrition education needed to be in a regular classroom—not as a clinic situation—and that when the nutrition worker (not the physician) led class discussions, children cooperated freely (3).

The second year's work, 1919–1920, proved reassuring in many respects. It was recommended that "the essential features of the nutrition class procedure should be incorporated in general school practice, and the resulting health program extended to all children, irrespective of initial physical status" (3). Furthermore, it was recognized that "the program that educates to the importance of caloric intake, without special emphasis on conceptions of balanced feeding and vitamin intake is inadequate" (3). It is apparent that this "failure" of the class method helped educators to recognize the need for developing nutrition education programs for all children.

Emerson wrote (4): ". . . a national organization, Nutrition Clinics for Delicate Children, Incorporated was formed in 1919." Request for training in his procedures led to the conducting of more than forty institutes extending from Aroostook County, Maine, to the Hawaiian Islands (5). Emerson worked in Hartford; San Francisco; Los Angeles; Lincoln, Nebraska; Battle Creek; Newark; South Bend; Portland, Oregon; Buffalo; Rochester, New York; Grand Rapids; Atlanta; Cleveland; Chicago; and New York City to train physicians, research students, nurses, social workers, dietitians, charity workers, teachers, and other experienced persons.

Undoubtedly the most distinguished pioneer in nutrition education programs for children is Dr. Lydia J. Roberts who, in 1918, worked both with the "individual method" and the "class method" in the Central Free Dispensary of Rush Medical College in Chicago. There, with the advice and help of Dr. Walter Hoffman, she developed a clinic situation which was not only of benefit to children, but also one in which advanced nutrition students from the University of Chicago gained first-hand experiences in methods of improving child nutrition. Mary Harper, Nutritionist for the New York Association for Improving the Conditions of the Poor, and Mary Swartz Rose of Columbia University were also pioneers in the historical development of nutrition education programs. As early as 1918, Miss Harper conducted nutrition classes in public school buildings after school hours for children in need of care, regardless of whether they were underweight. In 1919, Dr. Rose and Gertrude Mudge used the nutrition class method in a summer play school where nutrition students from Columbia University assisted and received training (2).

NUTRITION EDUCATION IN THE SCHOOL

It is interesting to note that during the early years of Emerson's work in clinics, as well as that of Roberts' and others, a concept of nutrition education was emerging within the teaching profession which was quite different. Emerson was advocating the creation of another class, another course, a separate program, one calling for segregation with special equipment, a special procedure, and extra personnel. And last, but by no means least in educational importance, the underweight child was being singled out as "different" at an age when he had special psychologic needs for being made to feel like others in this group.

Writings of Creswell (6) indicated that educators were seeing opportunities for nutrition education within school programs; they were advocating correlation of subjects—an integrated program. Creswell wrote of "Correlated Lessons for the Schoolroom" in notes to teachers who were concerned with food preservation involving knowledge of bacteria, molds, and yeast. The statement was made that the science embracing the study of microorganisms had widespread application in modern industry and in problems of disease and health. Therefore, instruction in food preservation principles was worthy of a place for boys and girls in any grade above the fourth. Teachers were urged to carry on the simple experiments suggested and to use the opportunties they afforded for related activities in language, drawing, and other subjects. Other sections of interest in Creswell's notes to teachers included a discussion of the then recognized five classes of foods—protein, fat, carbohydrate, mineral matter, and water—examples of each and their functions in the body.

Leggett (7) wrote of the introduction of home economics in an ungraded, one-teacher, rural school where children prepared hot food for their lunches. That activity was a part of the systematic study of food principles scheduled for three 1-hr. lessons a week for the first term and two lessons a week for the second and third terms. The children's studies included cooking lessons, school gardens, and food customs in other lands. Their work was correlated with number work, spelling, and copy work, and a microscope was used to show starch grains.

Another interesting account of how nutrition education was evolving within school programs was that written by Langworthy (8). It was reported that school lunches were being offered in elementary schools in forty-one cities in the United States. Langworthy considered school lunch programs as a working laboratory for giving instruction concerning the pure food movement, food costs, food values, and the relation of food to working efficiency. Further

insight into the educational potentials of school lunches was evidenced by the report of increased interest in school activities among parents. The following quotation suggests a concept which is often expressed in current writings but is yet to be fully appreciated (8):

> School feeding finds its justification in the fact that we cannot separate bodily and mental welfare; a well nourished mind is impossible in a poorly nourished body, and physical health is essential to the full mental and moral development of our children.

References are made frequently to the fact that nutrition education within present-day elementary school programs is something new and different, but there are indications in the literature that some teachers were aware of its importance as early as 1905. The following quotation implies recognized need for instructional materials at different levels including primary grades (9):

> Satisfactory textbooks on food and nutrition (important branches of home economics) are not available. . . . Teachers depend on Department publications to supply their place. There is a demand for more nutrition publications, both technical and popular . . . Simple leaflets are needed for instruction in primary grades and charts showing in graphic form results of nutrition investigations are very often requested.

Nutrition Education in the Twenties

Numerous reports indicate that Dr. Emerson's nutrition class method was tried by many workers, that it was more successful than individual work, and that variations in management soon developed. However, nutrition education programs for children were soon centered in the schools. Dr. Roberts in Chicago and Dr. Rose in New York worked independently and simultaneously for more than twenty-five years developing nutrition education programs for children and training hundreds of workers in both nutrition and nutrition education. Would that this paper might trace the professional lineage of these two pioneers, whose research and teachings are indelibly impressed upon the history of nutrition education programs for children!

Tenets of Roberts' work are clearly evident in current programs not only in the United States but in other lands. She came into the field of nutrition as an experienced teacher, recognizing that nutrition education could be done more effectively in a school situation than in clinics and that it was only through the public school that any widespread improvement of children's nutrition could be accomplished (2). The rationale for that realization is simply that almost every child can be reached in schools, not just those who are "under par." Furthermore, schools have teachers, those classroom specialists who are skilled and well trained in the art and science of pedagogy.

The spectacular weight gains of children in nutrition classes were widely publicized and in 1922 Dr. Emerson was called upon to start similar work in Rochester, New York. After about four years, the permanency of his efforts was studied by Kaiser, Norton, and Walker (10). They found that the nutrition class caused accelerated gains in weight for 80 per cent of equally under par children not in the class. It was concluded that the nutrition class held benefits not only for class members but also for their families and for other children in school. Again the value of an all-school program was apparent.

THE PUBLIC GRADE SCHOOLS

There were other contemporary developments which focused on the public schools as channels through which to safeguard children from malnutrition. The U. S. Office of Education, in cooperation with the Child Health Organization, sponsored a nation-wide campaign (2) calling for: (a) regular weighing and measuring of school children, (b) mid-morning or mid-afternoon lunches for all or underweight children, and (c) appeals to children's interest in health through graphic and attractive media, such as stories, plays, posters, games, songs, and pictures. The chief weakness of this campaign was the fact that weight alone is an inadequate criterion for the selection of children needing nutritional care. Thus, educators as well as physicians and nutritionists began to realize that nutrition education should be extended to the entire school. It was Maude B Brown, working in Fargo, North Dakota, in 1929, who made studies indicating that instruction designed to improve food habits is most effective when given during the child's early years (11).

Eichelberger (12) conducted studies in 1927 in nine schools in Moberly, Missouri, with a total enrollment of 1773 elementary school children. Data confirmed findings of other workers that malnutrition is not entirely the result of poverty. Also, it was shown that nutrition instruction resulted in a marked reduction of the number of underweight children who were exposed to nutrition instruction for one year. A proportionately better reduction in the number of underweights resulted from a three-year program of instruction. A nutritionist spent 1 hr. each week teaching the children about nutrition and its relation to health. The teacher could then correlate nutrition and health with other work, thus keeping the idea before the children five days a week instead of merely on the day of the nutritionist's visit. Underweight children were not placed in classes by themselves. Home visits were made to enlist parental cooperation. This study supplied evidence endorsing correlated nutrition instruction over a period of at least three years and postulated advances for a continuous program throughout the elementary grades.

Some six or seven chapters in Roberts' book (2) give direction to the nutrition-health program in the school. The main steps which are held desirable in

developing such a program are: (a) a survey of conditions; (b) an educational and corrective program based on the survey; and (c) a recheck or resurvey to determine results and future procedure. Nutrition teaching at various grade levels has been discussed with broad scope and interpretation by Roberts, who has also set forth fundamental principles which need only to be applied. They are included here with slight modifications: (a) Nutrition-health programs should be definitely progressive ones with appropriate emphasis at each grade level. (b) They should be positive rather than negative. (c) Those which deal with "reasons why" and the facts in the case which are taught should be accurate. (d) Teaching procedures must be genuine and endowed with a spirit of understanding. (e) They should be aimed at the most difficult goal which could be set—the influencing of behavior. (f) They must first of all develop attitudes which favor desirable practices.

Perhaps the correlated subject matter approach for all boys and girls advocated by the educators and the special services and segregated class method approach advocated by physicians and nutritionists during the first three decades of this century may be held as the true progenitors of modern concepts of nutrition education. Indeed, it is clearly indicated in the literature that the modification of these two approaches has been gradually interwoven to yield a series of approaches which reflect the nutrition work of physicians and nutritionists as well as the nutritional teaching of educators. They have worked together to build programs of nutrition education based on needs, interests, and age levels of all boys and girls. Many of those programs involved integration and correlation with many subjects and activities for the entire school program.

Nutrition Education in the Thirties

There are several sections in a report of one of the sub-committees of the 1930 White House Conference (13) which show evidences of nutrition education programs as well as some of the concepts which were beginning to change procedures. One of those sections, concerned with teaching nutrition in New York State, indicates that the position of "Supervisor of Nutrition" was created in the State Education Department in 1918 by an act of legislature. The supervisor was "... to conduct and administer a system of education in nutrition in the public schools and teacher-training institutions of the state" (13). At this time, the "nutrition class" was thought to be the solution to the problem of malnutrition. The state supervisor, however, believed that *every* child has a right to a knowledge of his nutritional requirements and that the issue was how to reach all the school children.

The teacher was recognized as the only one who watched the day-by-day development of school children. She was in the best position to help all the children. In modern schools (1932), barriers between subjects were fast disappearing, for different parts of the curriculum were being integrated—all being taught so as to become a part of the child's total experience. If that principle were accepted, it followed that the classroom teacher—not the nurse, the physician, the physical educator, or any person who visited the classroom occasionally—should be responsible for teaching nutrition in the elementary school. This meant that teachers needed to be trained in nutrition. Thus ten normal schools in New York State offered courses in nutrition to all students (twenty out of eighty periods in health education were for nutrition).

Still the difficulty of reaching teachers already in service needed to be overcome. The newly appointed Supervisor of Nutrition prepared bulletins for them entitled "Nutrition Notes for Elementary Teachers" and "Suggestions to the Rural Teachers on the Selection of Their Own Diet, Motor Activities, and Nutrition." The program was far-reaching and school lunches were served as a part of the nutrition education programs, for the supervisor wrote in 1932, "Good eating habits are now learned through meals eaten at school" (13).

An account of the program of nutrition in the public schools of Newark, New Jersey, prepared by Stone (13) traced its beginning to "open window classes" which started in 1910. Those classes were for under-par children who were believed to be highly susceptible to tuberculosis. There were approximately thirty pupils in each class who were given rest, supplementary feeding of milk or cocoa, and "unlimited" outdoor air. In 1921, the New Jersey Tuberculosis League conducted a nutrition class as a demonstration in one of the public schools and measured its success in terms of defects corrected, gains in weight, and physical improvement. The pupils in the nutrition class seemed to excel those in the open window class. This accomplishment led to the creation of a Department of Nutrition in 1924 as a subdivision of the Medical Inspection Department of the Board of Education. The Department, consisting of a physician, a nutrition supervisor, two nutrition teachers, and one nurse, developed a program in the schools along three lines: (a) nutrition classes for underweights; (b) health talks in the auditorium; and (c) weight and height surveys of the entire school followed by talks in classrooms by one of the nutrition teachers. Within five years (1924–1929), the program had grown to the extent of conducting nutrition classes in forty-three schools. By this time there were eighteen nutrition teachers and five part-time pediatricians conducting the program.

Because the work in Newark, conducted about twenty-five years ago seems so closely related to many of our present-day activities, the following paragraph is quoted here in recognition of its con-

tribution to the development of nutrition education programs for children (13):

> More and more we became convinced that the nutritional status of any generation in a community could not be greatly influenced through the corrective nutrition class alone, and that all children, regardless of weight, must be given an interest in and a knowledge of the fundamental principles of nutrition if they were to use judgment and to make wise choices for themselves.

Rose (14) wrote in the preface of her book, *Teaching Nutrition to Boys and Girls*, that: "Ten years of study of the teaching of nutrition in all grades from kindergarten to the eighth has made it quite evident that the first level at which some clearly formulated nutrition principles may be most profitably developed with children is about the fourth or fifth grade."

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Weight Gain and Pregnancy

It is a common practice for physicians to set a limit on the weight their patients gain during pregnancy. The reasons usually given are that this helps to prevent toxemia and long, difficult labor, adds to the patient's comfort, and improves her appearance.

The limit usually set is a gain of between 18 and 20 lb. for the entire period of gestation. Many physicians, however, arrive at the "ideal" weight at term for the patient's age and height rather than the patient's usual weight before she became pregnant.

Thomson and Billewicz in England and Brantley in the United States have done studies on the relation of weight gain to the outcome of pregnancy. In the British study, the weight gain of over four thousand married primiparas not subject to weight regulation was observed. After delivery, it was found that pre-eclamptic toxemia developed in only 2.6 per cent of those whose average weekly weight gain between the twentieth and thirty-sixth weeks of gestation did not exceed 0.5 lb. whereas 26 per cent of those who gained 1.75 lb. or more showed signs of pre-eclampsia.

Brantley in the United States studied over three hundred patients. The patient's ideal weight plus 18 lb. was the goal, but efforts at weight control were gentle persuasion rather than dire threats. Dietary advice was given rather than specific dietary formulas. In this series the usual weight before pregnancy did not influence weight gain. The average weight gain was 22.5 lb. but about 38 per cent gained 25 lb. or more. Moderate toxemia occurred in two patients who gained about 34 lb.

Thomson and Billecwicz found that the incidence of prematurity is highest when weight gains are consistently low, falling as the rate of gain increases, and then rising again with high rates of gain. Pre-eclampsia is an important cause of prematurity in the high- but not in the low-weight gain group. The most favorable outcome of pregnancy in regard to pre-eclampsia, prematurity, and perinatal death is associated with a moderate rate of weight gain during the second half of pregnancy. A gain of 1 lb. a week is suggested as sound and realistic. The more rigorous restriction of weight gain which has been advocated is not justified on present evidence and may be harmful. The best argument for weight control is that it makes the patient more comfortable and improves her appearance.

It is suggested that a sudden acceleration of the rate of weight gain is more significant regarding possible complications than a high average gain, but this is not a reliable sign. The only safe procedure is to observe each prospective mother at regular intervals, checking weight, urine, blood pressure, and general health throughout pregnancy.—*Abstracted from "Weight Gain and Pregnancy," Editorials and Comments. J. A. M. A. 164: 877 (June 22), 1957.*

Nutrition Education for Children in the U.S. Since 1900—Part II[1]

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AFTER ALMOST three decades of educational efforts directed toward nutritional instruction of school children, there was need to evaluate the results. Several studies extending over the course of the past twenty-five years have yielded evidence on which to formulate some very helpful generalizations for other investigators and teachers who may be especially interested in content and methods of teaching nutrition to school children. It is recognized that many unpublished studies may also have been made which might throw considerable light on the subject. However, so far as this writer has been able to ascertain, the following represents a review of the most significant investigations conducted in this country, with specific reference to methodology and subject matter in nutrition education programs.

The Era from 1930 to 1956

Botto (1) conducted a study in Kentucky in 1932 which showed that pupils who studied nutrition in high school home economics classes had dietary patterns little, if any, better than those who lacked such instruction. She concluded that the mere possession of information does not result in changed food habits. Christy (2) wrote two years later of work in a Muncie, Indiana, junior high school integrating nutrition into the curriculum without introducing a new subject. This was accomplished by allocating units of health instruction to various departments to prevent overlapping and omissions. Specific attention to nutrition of undernourished children was given by supplementary feedings and interviews with parents.

Segner (3) showed that pupils who made marked gains in scores on pencil-and-paper tests following instruction showed negligible improvement in the selection of foods, apparently because they were not motivated to change their eating habits or they did not have access to proper foods.

Another report of integrating nutrition into the elementary school was that of Meves (4), describing how second grade children in Westchester County, New York, prepared cereal in the foods laboratory as a part of the work in nutrition, and how sixth graders planned a party for mothers to climax their study of European food customs. Another sixth grade at the Daniel Webster School in New Rochelle, New York, studied foods the colonists ate. The children prepared dried apples which they later made into apple sauce, churned butter, made cottage cheese and popped corn.

Writings of McLester (5) in 1937 indicated that Emerson's class method had been used in Birmingham, Alabama, schools for many years and that they held educational value. It seems incredible that children were still being assigned to special classes and given intensive instruction in nutrition on the basis of weight anomaly alone. However, there is reason to believe that such practice was on the wane, for a report from the U. S. Office of Education in 1938 (6) showed that almost nine-tenths of the junior and senior high school girls in this country were enrolled in classes offering work in "foods and nutrition" as well as 1 per cent of the boys

Food Habits Were *Improved*

MacLeod (7) reported in 1939 that food habits of 5000 Tennessee high school students in ninety-five counties had been studied to determine the effects of nutritional training over a number of years. It was concluded that such training appeared to improve food habits, particularly in regard to use of milk, fruit, vegetables, and whole grain cereals.

[1] Fifth Lydia J. Roberts Award Essay, read at the 39th Annual Meeting of The American Dietetic Association in Milwaukee on October 11, 1956. This Award is made possible by a grant from Gerber Products Company, Fremont, Michigan, for the purpose of encouraging historical study of nutrition. Presentation of the Award was made at the Annual Banquet of the Association on October 11, 1956, by Dan F. Gerber, President, Gerber Products Company (see JOURNAL, page 1186, December 1956).

Hatcher showed (8) quite conclusively that definite improvement in food habits could be obtained when methods of instruction were designed with that as an objective. She showed that teachers who guided pupils to analyze their diets, to decide what they needed to do to improve them, and to check on their progress were able to obtain rather striking improvements. In contrast, she reported that when the teaching was of the traditional type in which the teacher decided what should be studied, how it should be done, and made the evaluation, there was no significant improvement in the diets of the pupils at the end of a period of food instruction.

Influencing Behavior vs. Giving Information

The swing from emphasis on disseminating nutrition information alone to that of influencing human behavior is indicated by numerous accounts in the literature. Van Horn wrote (9) of nutrition education in the secondary school with a definite objective:

> Nutrition education is carried to effective completion only when students put into daily practice good nutrition practices.

A series of studies by Lewin (1942–1943) at the State University of Iowa showed that food habits could be changed more effectively by group decision than by the usual request and admonition presented in lecture form (10).

Among several interesting accounts of nutrition education programs appearing in the literature in 1943 were those of Whittinghill, Martin and Reynolds, McLeod, Bell, O'Connell, and Thomas. Whittinghill (11) wrote of a progressive course of study for the first grade in Winston Salem, North Carolina, which emphasized some health principle each month —nutritional topics were included in three special topics. Martin and Reynolds (12) reported the use of a portable kitchen in teaching first grade children in Seattle to cook vegetable soup. That activity was integrated with other work offered at that grade level.

McLeod (13) worked with children in grades one through three in the demonstration school of Florida State College for Women. Indications from this study were: (a) children accepted food readily when experience with it was pleasant; (b) improvements in food habits were more marked when parents cooperated by serving disliked foods properly prepared at frequent intervals during the instruction period; and (c) improvement in eating habits continued long after the study was completed.

Bell (14) found considerable gain in both nutritional information and improved dietary practices among home economics students. O'Connell (15) reported improvements in food selection habits of tenth and eleventh grade students in North Carolina following an intensive course in nutrition employing a test, teach, and retest procedure. Foods most frequently selected were those discussed, then prepared and eaten by students in the laboratory period. Thomas (16) also reported dietary improvement in senior high school home economics students in Ohio when self-teaching and self-evaluation devices were used in laboratory periods.

Motivating Changes in Food Habits

Benson's (17) work with rural schools in Dakota County, Minnesota, indicated that children improve their food practices when they: (a) discover what changes they need to make, (b) are strongly motivated to learn about foods and to apply what they learn to their own diet, and (c) have access to the right kinds and amounts of food.

Sperry (18) developed an "experimental nutrition program" for third grades in city and consolidated schools in Washington State which demonstrated what several others have, namely: nutrition can be integrated with other subjects and does not necessarily need to be taught as a separate subject. However, there is no evidence that integration of nutrition into several other "subjects" assures improvement in food habits. Sperry observed that real life situations and group activities which give children some responsibility in planning their work afforded effective teaching of nutrition. He also observed that few grade teachers have training in nutrition, and therefore see few possibilities for teaching it. Hence there was need for nutrition materials for the third grade level as well as supervision to help build an appropriate program of nutrition which would prevent repetition. Another report (19) of the use of real life situation and actual preparation of food in primary grades was made in 1944 by Elliot who worked with third and fourth grades in North Carolina, where parents reported improvements in children's food habits.

By this time nutrition education activities were being so generally included in elementary school programs that such leaders in the field as Roberts (20), who had strongly advocated that nutrition education be centered in the public schools, concluded that schools were becoming increasingly aware of their responsibility in using nutrition education as an effective means of improving the nutritional status of Americans.

Educational Techniques

Nutrition education programs for children in Ascension Parish, Louisiana schools, caused significant improvements in food habits. Evaluation studies of those programs made in 1950–1951 indicated that their continuation, under local supervision, yielded marked improvements in food habits as compared with a nearby control school situation. Characteristics of these programs were published in 1952 (21).

Bosley's work in North Carolina (22), based on research she conducted at Teachers College with su-

pervision from Mary Swartz Rose, supported a graded plan of nutrition education emphasizing the importance of teaching only one nutrition idea at a time and giving children actual experience in eating foods at school.

Hocking (23) worked with thirty-one children in a third grade at Tuscaloosa, Alabama, in developing a program of nutritional guidance based on certain nutritional needs, as revealed by: physical measurements, a diet survey, observations in the lunch room, and dental conditions.

The work of Neel (24) was designed to discover if elementary school children, age seven to eleven, could assimilate certain technical nutritional subject matter. From this work it was concluded that elementary grade children could acquire rather advanced information about nutrition and that they evidenced some ability to apply facts learned to their own eating habits if the facts were presented in terms of simple experiments and if they were adequately illustrated.

Attitudes and Interests

Three studies reported in 1947 contributed specifically to nutrition education. They were those of Moore, Cline, and Tinsley. Moore (25) reported that a six-week series of food preparation activities with primary grade children had a favorable influence on attitudes about food outside as well as inside school. The same outcome was realized with fifth grade children who had prepared foods at schools for eight weeks and had fed and kept growth records on a litter of baby hamsters.

Similar activities were guided by Cline (26) in developing nutrition units for elementary children. She reported an increase in children's food interests as well as those of their parents.

Tinsley (27) worked with children in the elementary grades also and developed evaluation instruments for measuring certain nutritional information gains and dietary improvement. It was found that the relationship between informational gain and dietary gain showed no significant positive correlation. However, it was not interpreted to mean that the less information a pupil has the better his eating habits. Tinsley questioned whether she collected adequate data for the accurate determination of relationship between information and application.

It has been inferred frequently by recent work that improvement in dietary practices requires more than knowledge, and several studies have supported the thesis that attitudes and interests must be especially considered if educational procedures are used to improve eating habits. Considerable work has been directed toward determining what classroom methods of guiding nutritional behavior are most successful.

A nutrition education program was started in the schools in Newton, Massachusetts, in 1943 as an outgrowth of nutritional services provided by the Red Cross as early as 1933. Elizabeth Caso worked first with a community nutrition committee and then with teachers to develop ways of integrating nutrition into the curriculum. "Suggested Nutrition Units for Elementary Schools" was provided by the nutritionist. Further studies in Newton led to the development of a statement of goals for nutrition education from elementary through high schools. The Department of Nutrition at Harvard School of Public Health initiated a cooperative study of nutrition education in the schools of Rutherford County, Tennessee, in 1949. It was patterned after the work in Newton and demonstrated that nutrition facts could be incorporated into the regular studies of all grades (28). Since the primary purpose of these programs was short-term, information-centered rather than behavior-centered, it is not surprising that dietary practices did not improve significantly.

Radke and Caso (29) worked with junior high school students in Newton, Massachusetts, to compare group discussion-decision method with lecture without decision and found the discussion-decision method superior to the lecture method in changing students' lunch eating habits.

Moore (30) worked with elementary schools in Georgia to develop nutrition education programs which would function in the everyday lives of children. Her work was published in a film entitled "The School that Learned to Eat." She worked with representatives from more than twenty-five states in 1949 and 1950 to evaluate nutrition education programs for children as related to school lunch and community activities. She recognized the importance of planning nutrition education programs for children on the basis of real life problems. "Because of the great scientific studies being made almost daily teachers should try to develop in their students not just a fund of facts about nutrition as it is known today, but also some techniques for thinking critically about food and health which will stand by the students when new nutrition knowledge reveals different problem."

A modification of the nutrition education programs developed in Ascension Parish was explored within a carefully controlled situation in the Kansas City, Missouri, public schools between 1952 and 1955. Preliminary reports of this work developed in grades six and seven suggest that one year of nutrition programs does not cause significant "lasting" improvement in food habits. However, exposure for two years to these nutrition education programs yielded sustained improvement in food habits which were significant even after one year in high school without special nutrition education (31). These programs, like those in Ascension Parish, were based on the appraised needs of children which teachers, parents, and children approached as problems to be solved. The teachers had little or no formal nutritional train-

ing. The children's nutrition education problems were comparable to those of other children in like circumstances in the United States, and it is believed that the methods used to develop their nutrition education programs are applicable to the majority of school programs in this country.

Summary and Conclusions

In retrospect, nutrition education programs for children in the United States have come a long way since the turn of the century. Children are no longer encouraged to compete with each other in weight gains. Martin recognizes (32) that "a weight chart should be considered the property of an individual child. There should be no display of weight charts before the class and no comparisons made of gains made by the children." The "nutrition class" is no longer an extracurricular activity but rather, "Nutrition teaching in classrooms is a fundamental phase of the school nutrition program. To be effective it must be based on the needs, interests, and problems of the children and of the community and it must be suited to the abilities of the children at different grade levels."

It is generally agreed that the classroom teacher is the logical person to handle nutrition "instruction" in the elementary school. An understanding of both nutrition and children can contribute immeasurably to the total nutrition education program in schools, homes, and communities. It is also generally agreed that the aim of nutrition education is to establish and maintain desirable food habits. Changing food habits is a complex problem. It needs exploration by social scientists and nutritionists if practical methods are to evolve. Correlation of nutritional subject matter with other subjects of the curriculum usually leads to interesting reading and stimulates interest but does not assure improvement in food habits. Research favors the problem-solving approach over the subject-matter approach if nutrition education is aimed at influencing behavior. Learning to solve nutritional problems means: discovering the problem, where and from whom to get scientific information, using facts in making decisions, relating facts to real life situations, sharing information, and expressing and clarifying ideas. It means learning how to think critically. It is in relationship to these experiences that the "skill subjects" and other curriculum areas are called on to help solve the problem. Correlation thus becomes a means to an end, never an end in itself.

During the past fifty years the history of nutrition education has yielded principles and beliefs which may serve as directives for modern nutrition education programs for children. Characteristics of effective nutrition education programs include: (a) They are planned, developed, and evaluated by those concerned directly with existing nutrition education problems. (b) They begin with *planning* for an appraisal of food habits, including customs, beliefs, and attitudes as well as food intake. (c) They are more behavior-centered than information-centered. (d) They are not confined to classrooms or to a selected group of children but reach out into community resources to improve nutrition of all children and all families. (e) They develop evolving concepts of the science of nutrition and related disciplines as well as methodologies required to improve nutrition of children.

Teachers and administrators need not only a basic course in human nutrition but also some guidance in methods of using their knowledge to help children gain insights into relationships between nutrition and health. Would that all prospective and currently employed teachers and administrators had a working knowledge of Martin's book *Roberts' Nutrition Work with Children* (32), especially chapters ten through thirteen! Once that wish is realized, nutrition education programs for children in the United States will not only start a generation on the road to good nutrition, they will assure the next generation of a better chance to enjoy optimal nutrition.

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Electronic Food Preservation

Great potentialities for microwave preservation of foods were reported by Dr. David A. Copson, Manager, Food Laboratory, Raytheon Manufacturing Company, Waltham, Massachusetts, at the recent meeting of the Institute of Food Technologists in Pittsburgh.

Using electronic energy, beef, shrimp, strawberries, and other foods have been successfully preserved. Flavor evaluations by panels at Massachusetts Institute of Technology found no significant difference between the experimentally processed food and the cooked fresh product. Dr. Copson also reported that nutrients are better protected by this process than in other food processing techniques.

The preserved food weighs only a fraction of the fresh product, the weight of water in the fresh food having been removed by applying microwave energy while the food is held under vacuum at below-freezing temperatures. About 70 to 75 per cent of steak is water; shrimp is 80 per cent; and strawberries, about 90 per cent. When the food is needed, it is restored to its original fresh condition rapidly by simply immersing it in water. The food soaks up the water like a sponge and can then be cooked in any ordinary way.

This advance in food preservation, Dr. Copson declared, represents a major step forward in the technique of "freeze-drying" which may be compared to what happens when laundry dries out of doors in freezing weather. The moisture changes from the frozen state to vapor which is removed. The microwaves by-pass the already dried portions of foods and follow the receding ice volume to the center of the food. As the food dries, it becomes an efficient insulator. In conventional freeze-drying techniques, the heat must overcome this barrier, and the high-surface temperatures needed may damage the product.

Dr. Copson sees extensive potentialities for application of this new process, particularly in solving the military supply problem. Such spoilage-free food could provide light-weight field rations for foot soldiers who could enjoy appetizing meals merely by adding water. On Navy ships, a maximum of troops and crew could be fed with a minimum of cold storage facilities and reduced chances of food spoilage due to possible refrigerator or freezing breakdown. Items such as fruits, vegetables, meats, poultry, and fish could be handled as dry rather than fresh stores. In mass airlifts, the reduced weight would allow planes to operate with maximum loads and increased range. For the food processor himself, there would be less inventory in process due to the fast drying rate, and less equipment and plant space would be needed.

In the medical field, also, there would be applications. Production of freeze-dried tissue for tissue banks could be speeded up, thus making large quantities available in a shorter time to meet emergencies caused by disasters.

Tenderness of Beef[1]

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What part do tenderizers, cooking, and cuts play in the serving of tender beef to your patients and customers? This review brings up-to-date, current knowledge

SINCE MEAT is most often the food around which, in this country, we center our meal planning, everyone is interested in methods of obtaining a highly palatable product. The most important characteristics of palatability of meat are color, flavor, juiciness, and tenderness. Of these, tenderness is perhaps the primary concern, since color, flavor, and juiciness are usually more amenable to control by familiar practices.

Many studies have been made, and are being made, on the factors influencing the tenderness of meat. Most of these have dealt with beef, since pork is usually (but not always) tender. The work on lamb has been limited, possibly because of the smaller amount of lamb produced and consumed in this country. Therefore, this discussion will be confined to the work on beef.

The Problem

It is recognized that tenderness, or lack of it, in beef depends on a number of factors, rather than a single cause. This is shown by the reports in the literature, where similar studies at different times and/or in different places have given quite contradictory results. Further, the beef carcass is highly variable, both between animals and between different parts of the same animal, as evidenced by the degree of variation from animal to animal or cut to cut in even the best controlled studies.

The degree of tenderness of any given piece of meat is believed to depend on two primary factors: (a) the state of the contractile substance of the muscle, and (b) the amount and distribution of the connective tissue. The contraction of muscle is believed to depend on the combination of two proteins, actin and myosin, to form actomyosin. In the living animal, this is a reversible reaction, contraction being promoted by the breakdown of adenosine triphosphate (ATP), and relaxation by the regeneration of ATP. After death, the ATP in the muscle is broken down, leading to contraction of the muscle. Since the ATP is not regenerated, as it would be in the normal, living animal, this contracture is irreversible (1) and leads to the rigidity known as *rigor mortis*. Meat in this state is tough and rubbery. According to Szent-Györgi (2), such meat might become more tender due to (a) proteolysis of myosin by enzymes, (b) disintegration of actin in the absence of ATP, or (c) disintegration of actin by charges conferred on actin by various ions present in or added to the meat. Histologically, this change is shown by the occurrence of numerous cracks and breaks along the length of the muscle fibers themselves (3). Most of our knowledge of this factor is fairly recent and comes from basic study of the physiology and biochemistry of muscular contraction in the intact animal.

The second major factor influencing tenderness is thought to be the amount and distribution of connective tissue. Connective tissue is distinguished from muscle protein in the chemical laboratory by differences in solubility. Muscle protein is regarded as that portion of the total nitrogen-containing material which is soluble in dilute alkali; the insoluble residue is classed as connective tissue. The connective tissue is further subdivided into two parts—collagen which can be solubilized by autoclaving to covert it to gelatin, and elastin which is not affected by this treatment. There are many contradictory reports on the relationship between tenderness and connective tissue content, but recent improvements in methods of analysis for connective tissue (4–7) should alter this situation.

There is also the problem of the distribution of the connective tissue. It is possible that this is one of the places where fat content, especially intra-

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muscular fat, is important, since Hiner, Anderson, and Fellers (8) have pointed out that fatty deposits present in the collagenous fibers occur more as a loose network, in contrast to the bunched appearance of the collagenous fibers when fat is absent or present in small amounts only. Also, Wang *et al.* (9) have suggested a relationship between "linear" fat, measured by histologic observations, and tenderness of meat. If the role of fat as a separating or diluting agent for connective tissue in influencing tenderness of beef is confirmed, this should help to explain some of the conflicting reports in the literature, where total fat content as determined by ether extract may or may not show correlation with tenderness results. For example, Cover, Butler, and Cartwright (10) reported that fat content as determined by ether extract accounted for, at most, 10 per cent of the variation in tenderness of broiled loin steaks and 30 per cent of the variation in braised bottom round steaks.

Controls Available to the Consumer

There are a number of factors which are thought to affect tenderness which are outside the control of the purchaser-consumer in our normal market situation. These include such items as age, sex, and breed of animal; amount of exercise; and type of feed. However, there are elements which the consumer can influence, some familiar, others relatively unknown or not usually thought of in this connection.

One of the very important determinants of tenderness of beef is the extent of aging after slaughter. Fresh or "hot" (unchilled) beef is not generally available in the markets in this country. If it could be obtained, used immediately, and cooked by a rapid method, it would be relatively tender, since it would not have gone into rigor. If cooked more slowly, rigor would develop during cooking, and the meat would be very tough (11). However, most of our beef is chilled before marketing. This chilling usually requires 24 hr. or more at temperatures slightly above freezing. During this time, partial or complete development of rigor will occur, and it is then necessary to hold the meat for a further period to allow for the dissolution of rigor so that the meat will become tender again. The length of time varies with the conditions of storage. Ten days or more at 32° to 40°F. will produce a considerable degree of tenderizing. Longer time of holding under refrigeration will increase the tenderness further, but the maximum change occurs in the first ten to fourteen days. This time can be shortened by use of higher holding temperatures (40° to 60°F.) and use of ultra-violet lights or other means to reduce surface deterioration of the meat.

GRADES AND CUTS

Various grades of beef are available, depending on the market and area in which one trades and the price one is willing to pay. The carry-over of grade designation to the tenderness of an individual cut is not always good, partly because grades are assigned on the basis of the entire carcass, rather than the market cuts, and partly because no accurate, nondestructive method of determining tenderness is yet available. Nonetheless, numerous studies have shown that the top grades (Prime and Choice) are most apt to be tender, possibly because of the intramuscular deposition of fat required for the carcass to qualify for these grades. A recent study, based on eating preference, showed that a significant proportion of consumers preferred Choice to Good or Commercial grade beef (12).

The cut selected for consumption is another important element in resolving the problem of obtaining tender beef. The separation of the beef carcass into "tender" cuts, suitable for dry heat methods of cookery, and "less tender" cuts, more appropriately cooked by moist heat, is a concept familiar to consumers. It is well established that the various muscles of the carcass vary materially in tenderness (13), and in laboratory studies this is acknowledged by anatomical designation of the muscles being tested. More recently, studies have shown that even within a given muscle, the tenderness may vary between one part and another (14–16). This suggests the need for careful consideration of the individual piece to be selected from similar cuts usually grouped together by marketing classification.

PRE-COOKING TREATMENTS

The evidence as to the tenderizing effect of freezing beef is somewhat contradictory, some workers reporting a decided change, others finding no appreciable alteration. However, the majority of the studies indicate that freezing does increase the tenderness of beef to some extent. One of the recent reports deals with the suggestion that meat be frozen shortly after slaughter to reduce the holding time in the cooler, and points out that beef should not be frozen before the development of rigor is completed. Otherwise, a condition known as "thaw rigor" will develop, and the meat will be tough (1).

Various pre-cooking treatments and cooking methods have been recommended for tenderizing meat. Such aids as grinding, cubing, slicing, pounding, and marinating are advocated as means of breaking up the muscle and connective tissue and making the resulting product more tender. Griswold (17) found that pounding increased the tenderness of beef, but that scoring or soaking in vinegar did not. Traditionally, moist heat methods of cooking are considered to increase the tenderness of beef. However, Cover and Smith (18) reported recently that the effect of moist heat varies with the muscle employed. They found that the *biceps femoris* (bottom round) was more tender when braised than when broiled to the well-done stage, but that *longissimus*

dorsi (loin) showed little if any difference in tenderness due to method of cooking. In the braised *longissimus dorsi*, the muscle bundles fell apart readily, but the fibers were tough, while in the *biceps femoris*, braising produced fibers which broke readily across the grain, giving a mealy texture of unusual tenderness but also somewhat dry. In another study (19), it was found that round steaks cooked by dry heat (oven broiling) were more tender than paired steaks cooked by braising. However, Cover and Shrode (20) reported that braised cuts received higher scores for tenderness than cuts cooked by dry heat.

Enzymes as Tenderizers

Digestion of the muscle and connective tissue would be expected to increase the tenderness of meat by breaking up fibers into small units. Natives in certain tropical areas have used the ground or crushed leaves of the papaya as an aid in tenderizing meat. The papaya plant contains an active proteinase, papain. Also, bromelin, the proteinase of raw pineapple, is used in some sausage-making operations as a tenderizer for the sausage casings. Recently, several commercial enzyme preparations containing papain have been marketed for use in tenderizing meat, and there is considerable interest in their mode of action and effectiveness.

PAPAIN

A few studies have been reported, giving the data from controlled experiments on the tenderizing or digesting effect of various enzymes on beef. Gottschall and Kies (21) found that beef was digested by papain rapidly at 55° to 75°C., but only very slowly at room temperature. The enzyme did not penetrate the surface of a solid piece of meat at room temperature, but the rate of digestion was much increased by mixing the enzyme with ground meat. They concluded that, to be effective, the enzyme must be introduced into the interior of the meat, that the temperature of the meat should be raised, but not over 80°C., during the time the enzyme action was desired, and that the meat must then be used immediately or some means found to inactivate the enzyme. They also tried bromelin and found much the same effect, but the temperature of maximum effectiveness was somewhat lower (around 60°C.). Lowe (22) also reported the inability of papain to penetrate the intact surface of meat.

Hay, Harrison, and Vail (23) compared beef treated with a powdered enzyme preparation containing papain with untreated cuts. They sprinkled the powder over the meat and pierced the meat a number of times with a fork to aid in the penetration of the enzyme into the interior. They concluded that the enzyme treatment increased the tenderness of the meat except in the case of roasts held in the refrigerator 18 hr. after treatment. In a preference test using 100 people, 93 per cent preferred the meat treated with tenderizer. Griswold (17) reported that a commercial enzyme preparation or a laboratory-prepared mixture containing papain, "forked" thoroughly into the meat, made the meat more tender but less juicy than meat cooked by the standard braising method.

Partmann (24) reported that papain affects not only the muscle protein, but also the connective tissue. He found that periods up to 1 hr. caused little change, but longer periods led to disintegration of the fine structure of the muscle fibrils. His work was done on muscle homogenates, where the question of degree of penetration into the intact muscle would not arise.

PROTEOLYTIC ENZYMES

Miyada and Tappel (5) studied the effects of a number of proteolytic enzymes on the digestion of ground, freeze-dried beef. They used bromelin, papain, ficin, trypsin, pepsin, Rhozyme P-11, Rhozyme A-4, Protease 15, and a commercial meat tenderizer. The change of greatest magnitude was in conversion of muscle protein nitrogen to nonprotein nitrogen. Ficin, bromelin, and trypsin were most effective, followed by papain and Rhozyme P-11. Papain and ficin were most effective in digesting elastin, and bromelin, ficin, trypsin, Rhozyme P-11, and papain in digesting collagen. They concluded that bromelin, ficin, trypsin, papain, and Rhozyme P-11 were all deserving of further attention as possible meat tenderizers.

In an extension of this work with intact meat, Tappel *et al.* (25) confirmed the finding that there is almost no penetration of papain into the meat at room temperature. They reported that the maximum effect of papain in digesting beef occurred at 60°C., and that holding the enzyme-treated meat at room temperature up to 5 hr. before cooking did not increase the tenderizing effect. Wang and Maynard (26) also found almost no penetration of enzyme into intact meat, but report that the enzyme in solution form is slightly more effective than the dry powder. They are studying the application of enzymes through solution of the enzyme in the water used to rehydrate freeze-dried meat, and find this a very effective technique for effecting penetration of the enzyme into the meat.

PROBLEM OF PENETRATION

In the use of enzyme preparations to tenderize meat, several problems remain to be solved. Perhaps the primary one is that of the method of insuring penetration of the enzyme into a solid piece of meat. "Forking" the enzyme into the meat seems fairly effective, but is cumbersome, and does not insure even distribution of the enzyme. Studies being continued at the American Meat Institute on the addition of the enzyme to the water used for rehydrating freeze-dried meat should give interesting

information on the penetration and effectiveness of proteolytic enzymes in tenderizing this type of meat.

In general, the data available at present do not support the popular suggestion that the meat be held at room temperatures after treatment to allow time for the enzyme (papain) to act, since the effect of the enzyme under these conditions is negligible. The maximum activity seems to occur at elevated temperatures during the actual cooking process. Two reasons have been suggested for this: the optimal temperature for papain activity is around 80°C., although it varies somewhat depending on the substrate; and the heat denaturation of the muscle tissue and conversion of collagen to gelatin may make these proteins more susceptible to attack by papain. Finally, some means must be found to inactivate the enzyme in beef that is not to be served immediately. If the beef has reached an internal temperature high enough to inactivate the enzyme (close to 100°C.), this need not be considered, but if the beef is not very well done, the continued activity of the enzyme in the warm meat could break down the tissue to an unpalatable stage.

Addition of Salts

Perhaps the latest approach to the controlled tenderization of beef lies in the use of various salt solutions. Lowe (22) has summarized a number of earlier studies on the effect on tenderness of soaking beef in various salt solutions. More recently, Bendall (27) reported that the addition of pyrophosphate gave a more spongy and tender texture to cooked sausage. Morse (28) suggested that the effect of phosphate salts on water-binding capacity might be due to alteration of the *p*H toward the neutral point, since the water binding is minimal at the isoelectric point (*p*H 5.5). He also postulated that the phosphates might function indirectly by sequestering calcium and magnesium salts, while sodium chloride would act directly on the muscle proteins.

Deatherage (29) theorized that the ionic atmosphere of the muscle proteins affects the water-holding capacity of proteins, and that this water-holding capacity is directly related to tenderness. In a preliminary trial, he found that infusion of beef with sodium chloride solution by artery pumping increased the tenderness of the meat. Arnold, Wierbicki, and Deatherage (30) investigated the distribution of sodium, potassium, calcium, and magnesium and found evidence of considerable movement of the ions during aging of beef. The total amounts present showed no relation to tenderness, but the distribution did. Following up this lead, Wierbicki, Kunkle, and Deatherage (31) reported that the addition of 1.3 per cent sodium chloride decreased the water loss from beef during heating and that this hydration effect was related to increases in tenderness. They suggest that in the range of 40° to 70°C., dynamic shifts occur in the distribution of potassium, calcium, and magnesium in such a manner as to promote hydration of the meat proteins and tend to counteract the dehydration usually associated with heat coagulation. This tendency is increased by the addition of sodium chloride. In another paper (32) they reported that divalent ions (calcium, magnesium) were even more effective than monovalent (sodium, potassium) in promoting water-holding capacity, but all except sodium chloride had very low palatability thresholds. They then tried various combinations of salts and found a solution of sodium chloride plus magnesium chloride most effective within palatability limits. Beef round treated with this solution by stitch-pumping and holding 24 hr. was considered more tender by a panel of twenty-nine judges than the untreated control from the other side of the animal.

Suri (33) made an extensive study of the effect of infusion of sodium chloride on the tenderness of beef shank muscles. The treated muscles were infused by artery pumping to give a concentration of approximately 2 per cent sodium chloride in the muscle. The paired muscle from the other side of the same animal was used without treatment as the control. Infusion with sodium chloride definitely increased the tenderness of the meat over that of the control, and the effect increased with longer holding after treatment. This treatment did not alter the connective tissue content, but caused a loosening and expansion of the muscle bundles and disarrangement or almost complete breaking of the connective tissue between the bundles. Salt perfusion increased the water-binding capacity of the muscle proteins, as shown by elimination of post-freezing drip. The salt solution also dissolved some of the intracellular proteins and may have facilitated the enzymic degradation of the proteins of the muscle fiber, as evidenced by increase of refractive index of the muscle extract and increase in free amino acids. An additional series perfused with water showed none of these effects, indicating that the sodium chloride, not the water alone, was the effective agent.

The possibility of practical application of infusion of meat with salt solutions to the production of tender beef must await further study. There still is no method available for predicting that any given cut of beef will be tender, nor is there any sure method of treating or preparing the meat so that it will always be tender. However, a number of factors are now well enough defined to give considerable assistance in selection. And the intense interest in the problem and number of studies reported or in progress give credence to the hope that this problem will be solved in the not-too-distant future.

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Attending a Conference

Veterans of many conference sessions have offered hints on how to insure well spent conference time in the March issue of *Adult Leadership*. Before the conference, find out its general purpose. Pre-think your own interest and needs so that the conference will be more productive for you. Pre-register and leave your time schedule as free and flexible as possible. Stick with your discussion group; each time you switch groups you lose time. Don't hesitate to speak up. Aid the discussion leader in keeping one or two persons from dominating. Don't overlook the social life of a conference as an opportunity to meet people and learn things. Don't be afraid to ask persons with important sounding titles for advice on your problems or interest.—*Abstracted from: Hints on How to Attend a Conference by B. Carstenson. Adult Leadership 5: 267 (March), 1957.*

Do Spices Increase Acceptability of Therapeutic Diets?[1]

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Will the judicious and discerning use of spices, herbs, and seeds increase the palatability of the therapeutic diet, and hence its acceptability to patients? Does the presence of spices affect the satiety value of the diet? Here is a report of a study in which spiced and unspiced meals were compared to determine the answers to these questions.

SOME THERAPEUTIC dietary regimens can easily become monotonous unless constant effort is made to maintain maximum palatability and attractiveness. This study was undertaken to investigate the use of spices as a means of increasing the acceptability of such therapeutic dietary regimens as restricted-sodium, restricted-calorie, restricted-carbohydrate, or combinations of these. Spices, which in this report will include herbs and seeds, present a vast opportunity for flavor combinations. They are ideal vehicles through which to introduce new flavors into low-sodium meals and could possibly affect satiety value. Acceptability was measured by recording reactions to flavor and satiety of spiced and unspiced meals.

Experimental Procedure

Menus suitable for use on restricted-sodium and restricted-calorie regimens were planned for five days. Foods from these menus which lent themselves to seasonings were prepared with a variety of spices and rated by a panel for acceptability before presentation to subjects.

PANEL

The size of a tasting panel is a controversial subject. Schlosberg (1) feels expertness cannot substitute for a large number of judgments. On the other hand, Lowe (2) states that a small, keenly sensitive panel might be more desirable than a large panel of less sensitivity. She suggests four judges as a minimum number, but sets no maximum. More judges are desirable until a point is reached at which additional time involved and material needed outweigh the advantages.

The panel for this study consisted of thirteen dietitians and one food service supervisor who volunteered from the Department of Dietetics of the Grace-New Haven Community Hospital. A rotating schedule allowed seven judges at each tasting session. They were considered "experts" because of their profession. The judges were not tested daily for taste perception. Kotschevar (3) found that the use of the check test to predict tasters' efficiency appeared to be ineffective.

The judges were told that the aim was to find a spice or combination of spices which enhanced the flavor of a food. During the early tasting period, random checks were made for consistency in performance, and judges were informed of inconsistent results. Pfaffman (4) cites that disclosure of results to the judges serves as motivation to improve their performance. This early period was used to train the judges and to establish confidence in taste perception.

RECIPE TESTING

Selection of spices to be used in a food was based on information from pamphlets, recipe books, and the authors' experience.

Sample and control foods were prepared in the following manner. Spices used in amounts of less than ¼ tsp. were weighed to the nearest tenth of a gram. All others were measured. Vegetable samples

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were measured and cooked according to standardized procedures. Meats were weighed to the nearest gram, except pork chops and chicken, which were approximated. Controlled oven temperature, cooking time, or internal temperature regulated meat cookery. Canned fruits were spiced by simmering a measured amount of their liquid with the spice for a specified length of time and adding the hot liquid to the drained fruit. Desserts, salad dressings, rolls, and cheese fondue were prepared according to standardized recipes.

The judges were asked to rate the blend of food and spice as very good, good, acceptable, or unacceptable. Once a certain spice or combination of spices was consistently preferred in three successive scorings, the most desirable amount was determined by the use of a score sheet (Table 1). Three levels of intensity of the preferred seasoning were prepared along with a control which did not contain spice. The opinion of the judges was evaluated by assigning a numerical value to each descriptive statement. The highest score for a given sample could be 100. Flavor was allotted a possible 75 points. The spice level receiving the highest score was the one used in the final menus. Any spice level receiving an average total score below 70 was rejected.

TABLE 1 **Rating of three spice levels**

NAME: _____ DATE: _____

	SPICE INTENSITY		
	Sample A	Sample B	Sample C
FLAVOR (highest possible score 75)*			
A. Blend of food and spices is:			
1. (30) Very good (needs no improvement; maximum enhancement of food flavor)			
2. (25) Good (enjoyed it; minor improvement desirable; enhances food flavor)			
3. (15) Fair (could eat it without enthusiasm; food flavor could be brought out more)			
4. (5) Poor (food and spice do not complement each other or food flavor is masked)			
5. (0) Very poor (spice spoils flavor of food)			
B. Consider the level of the spice or spices in the food. The amount of spice or spices added is:			
1. (5) Too great			
2. (25) A little more than needed			
3. (30) Just right			
4. (15) Not quite enough			
5. (10) Insufficient			
C. The aroma of the food is:			
1. (0) Very strong (unpleasant)			
2. (12) A little too strong to complement the food flavor			
3. (15) Pleasing (good complement to food flavor)			
4. (12) Not strong enough (food flavor would be better complemented if aroma were stronger)			
5. (5) Undetectable			
TEXTURE OF FOOD IS:			
A. (10) Most appropriate for the food			
B. (9) Fairly appropriate			
C. (8) Acceptably appropriate			
D. (4) Not very appropriate			
E. (0) Not at all appropriate			
COLOR OF THE FOOD IS:			
A. (2) Unnaturally brilliant			
B. (8) A little brighter than is natural			
C. (10) Attractive			
D. (8) A little duller than is natural			
E. (0) Unnaturally drab and unattractive			
FORM OF FOOD IS:			
A. (5) Attractive and appropriate in shape			
B. (3) Not very attractive or appropriate in shape			
C. (0) Is unattractive and inappropriate in shape			

IF YOU HAVE ANY SUGGESTIONS FOR IMPROVEMENT, PLEASE INDICATE BELOW:
Example: Would you like more or less spice? Would you like a different combination of spices?

* Parentheses indicate weighted numerical value of each response.

MENU TESTING

The five daily menus containing the approved recipes were evaluated, using the score sheet shown as Table 2. Each descriptive phrase was assigned a numerical score. The highest score for the meal could be 100. Flavor was given a possible total of 75. The meals were considered acceptable if they received a score of 75 or more. Changes suggested by the majority of judges were made.

Nine dietitians and one male graduate student were placed on restricted-sodium, restricted-calorie, or restricted-sodium-restricted-calorie diets for a ten-day trial study. Each daily menu was presented for two consecutive days, one with and one without spices. A statistically approved pattern dictated the alternation of spiced with unspiced days. Subjects were asked to criticize constructively each menu and rate it according to Table 3. A specific question was asked concerning preference for spice in the meat, since meat seemed to be the item in which spice was the most noticeable and appropriate. It was also the only food which was spiced in every meal. Within the restrictions of the diet, the menus were the same. The restricted-sodium regimen allowed unlimited amounts of low-sodium bread and butter, desserts, and fruits, provided an equal quantity was consumed each two-day period.

TABLE 2 Rating of the entire meal

NAME _____ DATE: _____

Underline the phrase which best describes the meal

FLAVOR (highest possible score 75)*

A. Consider the variety of food flavors. Do you feel the variety of flavor was:
   1. (5) Far too large
   2. (20) Slightly overdone
   3. (30) Good
   4. (25) Limited
   5. (5) Lacking

B. Consider the amount of seasoning in the food served you. Do you feel the seasoning of the meal as a whole was:
   1. (5) Too great
   2. (25) A little more than needed
   3. (30) Just right
   4. (15) Not quite enough
   5. (10) Insufficient

C. Consider the aroma of the meals as a whole. Do you feel it was:
   1. (15) Pleasing
   2. (10) Undetectable
   3. (0) Displeasing

CONSIDER THE CONTRAST OF SHAPES IN THE MEAL. DO YOU FEEL CONTRAST WAS:

A. (2) Too great
B. (4) Slightly overdone
C. (5) Attractive
D. (2) Poor
E. (0) Completely lacking

CONSIDER THE TEXTURE OF FOODS. RATING THE MEAL AS A WHOLE, DO YOU FEEL THE TEXTURES WERE:

A. (5) Very agreeable
B. (4) Fairly agreeable
C. (3) Agreeable
D. (1) Disagreeable
E. (0) Very disagreeable

CONSIDER THE COLOR COMBINATION IN THE MEAL. DO YOU FIND THE COMBINATION:

A. (1) Too gaudy
B. (7) Slightly gaudy
C. (15) Pleasing
D. (7) Slightly dull
E. (0) Very dull and drab

COMMENTS OR SUGGESTIONS

*Parentheses indicate weighted numerical value of each response.

PRESENTATION TO SUBJECTS

After completion of this trial period, the menus were presented to patients on the Medical and Surgical Services of the University Service of the Grace-New Haven Community Hospital. From among cooperative subjects, a random group of patients on restricted-sodium or restricted-calorie diets was chosen. The majority were ward patients. Subjects were told that this was an experiment to improve the flavor of therapeutic diets. They would be asked to compare paired menus, one day being prepared differently from the other. They were requested not to eat between meals except for fruit juice, which, if taken was to be the same amount and kind each paired day. Noon and evening meals were served directly to the patients by the authors. Since breakfasts followed a standard pattern, these meals were served from the ward kitchen. Subjects were encouraged to consume all food served to them. A record was kept of unconsumed food. After the evening meal on the second of the paired days, subjects were asked the questions shown on Table 3.

TABLE 3 Comparison of spiced and unspiced days

NAME_____ DATE:_____

TYPE OF DIET_____ DIET NUMBER:_____

Please underline the most appropriate phrase

The meals seems:
A. Tastier on the first day.
B. Tastier on the second day.
C. To have no difference in taste appeal either day.

I find that I was:
A. More hungry on the first day.
B. More hungry on the second day.
C. Equally hungry on both days.
D. Well satisfied both days.

I liked the meat:
A. Better the first day.
B. Better the second day.
C. Equally as well both days.

Nutritional histories were taken to obtain information which might be helpful in explaining subjects' reaction to the spiced regimen. Due to the patients' limited stay in the hospital or interruptions for surgery, it was rarely possible to keep them on the study for the full ten-day period.

Eleven hospital employees volunteered as subjects on restricted-sodium and restricted-calorie diets for two four-day periods, with no dietary restrictions for the intervening three days. A record was kept of food not consumed. Nutritional histories were taken. It was the responsibility of each subject to eat the same breakfast for a two-day period. With the patients this group totalled forty-five subjects.

Six college students, majoring in foods and nutrition, and one laboratory technician were also placed on restricted-sodium diets for a ten-day period. Rather than an alternating pattern of spiced and unspiced daily menus, they received the five spiced menus in succession and the five unspiced menus in succession. At the end of the study they compared the two periods using the questionnaire in Table 3 except that questions referred to a five-day period.

Results

Table 4 shows the varied responses of the subjects to spice in the therapeutic diets. The majority of subjects preferred Menus 1 and 2 spiced. Menu 3 included cheese fondue and broiled fish, dishes which were often refused by subjects. Due to its unpopularity, it was not tested enough times to be considered in the results. Subjects preferred Menu 4 unspiced. Those judging Menu 5 were almost equally divided among those preferring the spiced day, the unspiced day, and those showing no preference. When statistical differences were calculated[4], none of the menus

[4] $\chi^2 = \sum \frac{(O - E)^2}{E}$

where O = observed number
E = expected number on the assumption that there is no difference between the spiced and unspiced groups

and $\sum$, the summation sign, implies the results are added for spiced and unspiced groups.

A χ^2 of 3.84 or higher indicates that the difference between spiced and unspiced groups is statistically significant at the 5 per cent level; that is, the odds are 19 to 1 against a difference of the magnitude found, or greater, arising by chance alone.

TABLE 4 **Responses to spiced and unspiced diets**

DAILY MENU	TOTAL SUBJECTS	MEAL PREFERENCE				SATIETY VALUE				MEAT PREFERENCE				
		Spiced day	Unspiced day	Neither day	Statistical difference*	Spiced day	Unspiced day	Neither day	Statistical difference*	Type	Spiced day	Unspiced day	Neither day	Statistical difference*
Hospitalized Patients and Hospital Employees														
1	28	18½†	8½	1	3.58	1	7	20	1.28	Meat loaf	16	7	7	2.90
										Roast lamb	18	5	5	6.04
2	33	17½	9	6½	2.18	6	4	23	0.12	Spaghetti	17	7	9	3.02
										Pork chops	12	9	12	0.28
3	11	1	4½	5½	1.12	0	1	10	0.10	Cheese fondue	1	4	6	0.82
										Broiled fish	1	4	6	0.82
4	26	4	12	10	2.46	2	2	22	0	Hamburger	5	12	9	1.88
										Chicken	4	13	9	3.12
5	29	9	9½	10½	0.01	2	0	27	0.14	Veal cutlet	8	10	11	0.14
										Pot roast	7	10	12	0.32
Dietitians and Graduate Student														
1	10	10	0	0	10.00	2	3	5	0.10	Meat loaf	10	0	0	10.00
										Roast lamb	0	1	0	6.40
2	10	8½	1½	0	4.90	2	2	6	0	Spaghetti	8	2	0	3.60
										Pork chops	8	2	0	3.60
3	10	9	0	1	8.10	2	1	7	0.10	Cheese fondue	8	2	0	3.60
										Broiled fish	9	0	1	8.10
4	9	8	1	0	5.40	1	3	5	0.44	Hamburger	8	1	0	5.40
										Chicken	8	1	0	5.40
5	10	9	0	1	8.10	0	1	9	0.10	Veal cutlet	8	1	1	4.90
										Pot roast	9	0	1	8.10

* A difference of 3.84 or higher is statistically significant.

† The fractions indicate that an individual was divided in his opinion about the seasoned foods within each day's menu. For instance, he may have preferred the noon meal spiced, but the evening meal unspiced.

was significantly preferred either spiced or unspiced. On the whole, subjects noticed no difference in their hunger between the spiced and unspiced regimens. Preference for spiced meats varied with each item. The majority of subjects liked their meat loaf, lamb, and spaghetti spiced. More subjects favored hamburger and chicken unspiced. Veal and pot roast were also preferred without spice, but not to such an extent as hamburger and chicken. The only statistically significant preference was for spiced roast lamb (Table 4).

In the study with the six college students and one laboratory technician all seven subjects felt that the five spiced meals which were served first were tastier; this was a statistically significant finding. Most could notice no difference in their hunger, and all but one preferred his meats spiced.

Discussion

Awareness of the seasoning and approval of the incorporated spices seemed to be a highly individualized matter with the forty-five subjects. No subject stated a consistent preference for both spiced meals and spiced meats. The difference in spice preference of the subjects cannot be explained readily. The panel felt that the spice was equally apparent and pleasing in all five menus, as did the subjects on the trial study (Table 4). Eighty to 100 per cent of the subjects on the trial study preferred the spiced meals.

Since flavor preference is so highly subjective, it is difficult accurately to represent it statistically. However, a number of factors were observed which might seem to influence flavor preference.

Taste perception may be influenced by the age of the individual. Cowdry (5) cites that Arey *et al.* in 1935 took an anatomical taste-bud census of 112 cadavers, varying in age from twenty to eighty-five years and compared their results with those of Heiderick obtained in 1906 for people from birth to twenty years of age. They found that the mean value of taste-buds per papillae from zero to twenty years of age was 245, from maturity to old age it was about 208, and from seventy-four to eighty-five years, it declined to 88. According to Moncrieff (6), there is a disappearance of taste-bud receptors from the center of the tongue and the inner surfaces of the cheek as the individual reaches adulthood. Taste acuity in older people may be influenced also by the slight atrophy of the lingual mucosa, as mentioned by Freeman (7). In this study, preferences of subjects aged sixteen to forty were compared with those forty-one and above (Table 5). The only statistically significant differences were a preference for meat loaf in the older group and for lamb in the younger. The authors are unable to explain this variance.

Moncrieff (6) says that the sense of taste is dulled by the constant use of tobacco, and Boelke and Routh (8) found that non-smokers could detect weaker solutions of acid than could smokers. In contrast, King (9) noted no significant difference

TABLE 5 Difference in spice preference between two age groups

MEAT	NUMBER OF SUBJECTS	SPICED DAY	UN-SPICED DAY	NEITHER DAY	STATISTICAL DIFFERENCE*
Ages 16 to 40 Years					
Meat loaf	19	9	6	4	0.48
Roast lamb	19	12	3	4	4.26
Spaghetti	20	11	4	5	2.46
Pork chops	20	10	4	6	1.80
Cheese fondue	7	1	4	2	1.28
Broiled fish	7	1	4	2	1.28
Hamburger	18	3	10	5	2.72
Chicken	18	2	10	6	3.56
Veal cutlet	19	6	7	6	0.06
Pot roast	19	5	8	6	0.48
Ages 41 to 63 Years					
Meat loaf	9	8	1	0	5.44
Roast lamb	9	7	2	0	2.78
Spaghetti	13	6	3	4	0.70
Pork chops	13	3	4	6	0.08
Cheese fondue	4	0	0	4	0
Broiled fish	4	0	0	4	0
Hamburger	8	2	2	4	0
Chicken	8	2	3	3	0.12
Veal cutlet	10	2	3	5	0.10
Pot roast	10	2	2	6	0

* A difference of 3.84 or higher is statistically significant.

TABLE 6 Difference in spice preference between smokers and non-smokers

MEAT	NUMBER OF SUBJECTS	SPICED DAY	UN-SPICED DAY	NEITHER DAY	STATISTICAL DIFFERENCE*
Smokers					
Meat loaf	10	5	2	3	0.90
Roast lamb	10	7	1	2	3.60
Spaghetti	13	4	3	6	0.08
Pork chops	13	2	5	6	0.70
Cheese fondue	4	0	1	3	0.26
Broiled fish	4	0	1	3	0.26
Hamburger	11	1	7	3	3.28
Chicken	11	0	6	5	3.28
Veal cutlet	11	4	2	5	0.36
Pot roast	11	4	2	5	0.36
Non-Smokers					
Meat loaf	10	5	2	3	0.90
Roast lamb	10	7	1	2	3.60
Spaghetti	13	4	3	6	0.08
Pork chops	13	2	5	6	0.70
Cheese fondue	4	0	1	3	0.26
Broiled fish	4	0	1	3	0.26
Hamburger	11	1	7	3	3.28
Chicken	11	0	6	5	3.28
Veal cutlet	11	4	2	5	0.36
Pot roast	11	4	2	5	0.36

* A difference of 3.84 or higher is statistically significant.

between the taste sensitivity of smokers and non-smokers. Thresholds for sweet, salt, bitter, and acid were determined. Only a slight, but insignificant difference was noticed in threshold sensitivity to acid. The threshold was lower for non-smokers. The results of this study bear out the opinion of King. There were no statistically significant differences between spice preferences of smokers and non-smokers, except a significant preference for spaghetti among the non-smokers (Table 6).

Food experience would seem to be a factor in taste discrimination. Most subjects were unfamiliar with the use of spices except for an occasional favorite seasoning in a particular dish. No subject mentioned the use of more than three or four spices at home. Comparisons were made between the nine dietitians on the trial study and the eleven hospital employees. The former were food conscious, while the latter had had little food experience. The dietitians overwhelmingly preferred spiced food, whereas there was a large variance in preference amongst the employees (Table 7). The six college students unanimously preferred the meals spiced.

It was thought that the state of health of the individual might affect his attitude towards food. The comparison between eleven healthy subjects and the thirty-four patients did not bear out this theory (Table 8). However, none of these patients was extremely ill, since a patient had to be well enough to have an interest in food.

Other factors which might affect flavor preference are nationality or culture, income level, and the length of time an individual has been on a therapeutic diet. Sufficient data were not obtainable to support any theories concerning these factors.

Fox (10) believes that chemical differences in individuals, not environmental conditions, determine food preferences. He found that there were ten chemically different classes of taste reactors among the general public, each class with definite food preferences. He disclosed that 76 per cent of the population is included in four of the groups. No attempt was made to classify the subjects in this manner, but it is felt a representative sampling was obtained.

It is possible that a patient's appetite might be affected by the way he felt each day. On a day when he is feeling less well, his appetite and sensitivity to taste and odors may be decreased. According to Schutz and Pilgrim (11), a hungry person is more sensitive to tastes and odors than one who is satiated. Thus, appetite might be a factor in flavor preference.

Many tastes are actually odors because of the position of the sense organ of smell, according to Hollingworth (12). Moncrieff (6) says that warm and hot food and beverages are more flavorsome than cold, due to a greater volatility of odorous constituents. This might explain why subjects did not comment on seasonings in cold food as often as in hot food.

Sherman (13) has classified spices into three groups: the stimulating condiments, such as pepper and mustard; the aromatic spices, which include cinnamon, ginger, and caraway; and the sweet herbs of which dill, marjoram, and thyme are a few. Each of these classes produces a different kind of taste and odor sensation. It is possible that some subjects found only the sensations produced by one of the groupings

TABLE 7 Difference in spice preference between dietitians and hospital employees with no food experience

MEAT	NUMBER OF SUBJECTS	SPICED DAY	UN-SPICED DAY	NEITHER DAY	STATISTICAL DIFFERENCE*
Dietitians					
Meat loaf	9	9	0	0	9.00
Roast lamb	9	8	1	0	5.44
Spaghetti	9	7	2	0	2.78
Pork chops	9	7	2	0	2.78
Hamburger	8	7	1	0	4.50
Chicken	8	7	1	0	4.59
Veal cutlet	9	8	1	0	5.44
Pot roast	9	9	0	0	0
Hospitals Employees					
Meat loaf	10	6	2	2	1.60
Roast lamb	10	5	3	2	0.40
Spaghetti	11	6	2	3	1.46
Pork chops	11	6	2	3	1.46
Hamburger	11	2	9	0	4.46
Chicken	11	2	9	0	4.46
Veal cutlet	11	4	5	2	0.10
Pot roast	11	4	5	2	0.10

* A difference of 3.84 or higher is statistically significant.

TABLE 8 Difference in spice preference between patients and normal subjects

MEAT	NUMBER OF SUBJECTS	SPICED DAY	UN-SPICED DAY	NEITHER DAY	STATISTICAL DIFFERENCE*
Patients					
Meat loaf	18	10	5	3	1.38
Roast lamb	18	13	2	3	6.72
Spaghetti	22	11	5	6	1.64
Pork chops	22	6	7	9	0.04
Hamburger	15	3	3	9	0
Chicken	15	2	4	9	0.26
Veal cutlet	18	4	5	9	0.06
Pot roast	18	3	5	10	0.22
Normal Subjects					
Meat loaf	10	6	2	2	1.60
Roast lamb	10	5	3	2	0.40
Spaghetti	11	6	2	3	1.46
Pork chops	11	6	2	3	1.46
Hamburger	11	2	9	0	4.46
Chicken	11	2	9	0	4.46
Veal cutlet	11	4	5	2	0.10
Pot roast	11	4	5	2	0.10

* A difference of 3.84 or higher is statistically significant.

pleasing and did not care for spices from other groups, but no data were collected to substantiate this theory.

It has been thought that the stimulating effect of a more highly seasoned diet might add to its satiety value. According to McLester and Darby (14), satiety value of a food is measured by the length of time it remains in the stomach and the amount of gastric juice stimulated by it. Schutz and Pilgrim (11) claim that certain condiments stimulate gastric flow. Therefore, it would be reasonable to assume that a diet containing added seasonings might be more satisfying, particularly to those on restricted-calorie regimens. However, in this experiment, satiety value did not seem to be affected by the addition of spice (Table 4). The method used was highly subjective, since the patient was asked to remember and compare his feelings of satisfaction with the diet within a two-day period. Results obtained in this study do not rule out the possibilities of physiologic differences in patients' reactions to the spiced and unspiced diets, when measured objectively.

Summary

An investigation was undertaken to learn whether the incorporation of spices increased the acceptability of therapeutic diets.

Restricted-calorie and restricted-sodium menus for five days were planned. Certain foods from these menus were spiced in various ways and rated acceptable by a group of seven taste experts. Ten subjects were placed on restricted-calorie, restricted-sodium, or restricted-sodium-restricted-calorie diets for a ten-day trial study, using these menus. Each day's menus were presented for two consecutive days, one with and one without spices. A statistically approved pattern dictated the alternation of spiced with unspiced days. The subjects were asked to criticize the menus and to answer questions about the meals designed to reveal whether spices increased the acceptability of the meals as a whole and the meats in particular, and whether the satiety value of the day's diet was increased with the addition of spice.

These same menus were then presented in a similar manner to thirty-four hospitalized patients and eleven hospital employees, a total of forty-five subjects. Six college students and one laboratory technician also received the five spiced menus and the five unspiced menus in succession and were asked to compare their flavor and satiety after ten days.

The majority preferred the first two menus spiced, while Menu 4 was preferred unspiced. For Menu 5, there was almost equal division between those preferring it spiced, unspiced, or having no preference. When statistical differences were calculated, neither spiced nor unspiced menus were preferred significantly. On the whole, satiety value of meals remained unaffected by subjective measurements, but this does not rule out the possibility that a more objective method, testing actual physiologic reactions, might show a difference. Preference for spiced meats varied with each item. The majority liked meat loaf, lamb, and spaghetti spiced, but favored hamburger and chicken unspiced. Veal and pot roast were preferred unspiced, but to a lesser extent than hamburger and chicken. Over a longer period, there was a unanimous acceptance of spices as increasing the flavor of meals, and all but one preferred the meats spiced. However, spices did not appear to be effective in increasing the acceptability of certain therapeutic diets, although other groups of patients might not follow this pattern.

Differences in individual flavor preferences seem to be highly subjective and cannot be explained readily. A number of factors were observed which might influence flavor preference, including: taste perception, as affected by age, food experience, or familiarity with spices, and the temperature of the food served.

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A Research Diet Team in a Surgical Research Service[1]

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FOR SOME time, the Surgical Research Service of the Medical College of Virginia has been making a series of metabolic and nutritional studies with seriously ill patients, especially those with severe burns. These studies have been carried out with the cooperation of the Walter Reed Army Institute of Research, Walter Reed Army Medical Center. In 1949, when a six-bed ward for burn study was established at the St. Philips Hospital, a special research diet kitchen was also organized. Later this was extended to fourteen beds and, at the same time, a twelve-bed ward was opened at the Medical College of Virginia Hospital.

The Research Diet Team

Two dietitians, two diet aides, a part-time maid, and a part-time porter comprise the personnel of the research diet kitchen. The *dietitians* work with the Director of Nutrition, helping to plan, organize, conduct, and interpret the studies. They also calculate the diets, compile the daily nutritional records, and order and inventory supplies. In addition, they make daily rounds on the wards for burn patients, weekly rounds with the research staff, and assist with nutrition consultations. The *diet aides* prepare and deliver feedings to the wards. The *dietetic interns* learn research procedures and assist the dietitians in all of their duties. At the Medical College of Virginia, each dietetic intern spends two weeks of her year's internship in the research diet kitchen.

The diet kitchen and diet office are located in the building of the Medical College of Virginia Hospital, approximately halfway between the two wards for burn patients. The distance between the two wards is about ⅓ mi. The diet kitchen—originally a small cafeteria—has access to elevators and dumb-waiters. It is equipped with many standard items, such as refrigerator, stainless steel counters, cabinets, dishwashing unit, metal trays, serving utensils, glasses, silver, and chinaware. Items essential to the specialized activities were added to this equipment: additional shelves for storage, electric range, steamer, freezer, two small utility trucks, electric blenders (1 and 5 liters), direct reading balance, trip balance with weights, stainless steel pitchers (2 to 5 liters), wire utility baskets, metal and rubber spatulas, glass graduates (10 to 1000 ml.), plastic graduates (1000 ml.), and wide mouth screw top bottles (100 to 500 ml.)

Liquid Diets

At the start of the research program, it was decided to use liquid diets because a liquid feeding regimen has the following advantages over solid food: (a) the high intake required by seriously injured patients can be provided in a comparatively small volume; (b) the patient is relieved of the necessity to chew (especially important for patients with facial injuries); (c) constancy of dietary composition is more certain with liquid feedings because fewer ingredients are used and large single lots of each item are obtained (and a relatively small storage area is required); (d) liquid feedings are more easily and accurately formulated, prepared, and sampled for analysis; and (e) dietary intakes are readily recorded and calculated. By using liquid feedings, we are able to study six to eight patients concurrently. Some of our experiences with these feedings have been presented briefly elsewhere (1).

Most of the patients have been maintained on oral feedings. These are palatable mixtures formulated from suitable combinations of the following ingredients: skim milk powder, whole milk powder, evaporated milk, modified milk powders, eggs, Ediol[5] or Lipomul[4] and Dextri-Maltose[6]. Minerals and vitamins are added as indicated, and crude liver ex-

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[4] Such as Liprotein furnished through courtesy of The Upjohn Company, Kalamazoo, Michigan.

[5] Courtesy of Schenley Laboratories, New York City.

[6] Courtesy of the Mead Johnson and Company, Evansville, Indiana.

tract[7] (oral) is added routinely. Flavoring is used according to the patient's preference (chocolate, vanilla, strawberry, coffee, walnut, peppermint, lemon, banana).

When high protein intakes are required, milk powders are not satisfactory as the major source of protein because of the large amounts of calcium and phosphorus which they provide. For example, if 280 gm. protein were supplied from skim milk powder, 10 gm. calcium and 8 gm. phosphorus would be present in the formula. Homogenized peanut butter is low in these two minerals and has proved a satisfactory substitute for part of the milk powder in the feedings with normal or high fat content. The familiar peanut butter flavor has been well accepted. Dried egg albumin[8] (Salmonella-free) is another good source of protein, low in calcium, and palatable when blended with other oral protein products. Canned strained meats are also low in calcium and may be used successfully in liquid-feeding mixtures. Combining these various foods also offers a combination of proteins of high biologic value.

Occasionally, high-protein feedings are needed which are low in sodium. In these cases, one of the proprietary, high-protein powders[9] with a low sodium content is used. A sample feeding mixture and calculation are listed in Table 1.

Supplements to the oral "milk shakes" are given to the patients if they tire of the regimen. These additions, such as fruit, fruit juice, or a light breakfast, are calculated and the value of the supplement is deducted from the special feeding so that the total daily intake remains constant.

Nasal tube feedings are substituted for the oral formulas when patients cannot take food by mouth. An expendable plastic intubation tube (size 8 Fr.) is used, and the feedings are administered either by syringe or the gravity drip method. These tubes give the patient greater comfort with less irritation to the esophagus and stomach than rubber tubes. The typical oral formulas, if not too concentrated, can be introduced through a tube. We prefer them to those containing protein hydrolysates as the source of nitrogen, except in an occasional instance when whole protein cannot be digested. Whole dried liver[8] or canned strained liver is recommended as an additional ingredient in the tube-feeding formula. Here, advantage can be taken of the known nutritional excellence of liver, whereas in an oral formula, its unpalatable taste limits its use to small quantities. The tube rarely becomes clogged if 25 to 50 ml. water are passed through it after each feeding.

The volume of the liquid formula is determined by the patient's fluid requirement and individual tolerance. Concentration is usually kept in the range of from 1 to 2 calories per milliliter of feeding and is another factor in determining the total amount the patient will receive. In general, patients can tolerate from 150 to 400 ml. when given every 2, 3, or 4 hr., the total quantity seldom exceeding 2700 ml. per 24 hr. An unbroken rest period of 4 to 10 hr. is

[7] Valentine Co., Inc., Richmond, Virginia.

[8] Henningeen Lamesa, Inc., Lamesa, Texas.

[9] Lesofac (Wyeth, Inc., Philadelphia); Lonalac (Mead Johnson and Company, Evansville, Indiana); Melactin (E. R. Squibb & Sons, New York City).

TABLE 1 **Liquid feeding calculation for female patient, 30 years old, weighing 70 kg.***

INGREDIENTS	WEIGHT	PROTEIN	FAT	CARBOHYDRATE	CALCIUM	PHOSPHORUS	IRON	SODIUM	POTASSIUM	VITAMIN	THIAMINE	RIBOFLAVIN	NIACIN	PANTOTHENIC ACID	ASCORBIC ACID	VITAMIN D
	gm.	gm.	gm.	gm.	gm.	gm.	mg.	mEq	mEq	I.U.	mg.	mg.	mg.	mg.	gm.	I.U.
Eggs	150	17	15	1	0.07	0.28	3.6	5.2	3.9	1530	0.14	0.39	0	4	0	75
Veal, strained	200	30	5	0	0.02	0.23	3.4	12.2	10.8	0	0.04	0.46	6.9	1	0	0
Liver, strained	25	4	1	0	0.01	0.07	1.8	1.5	2.4	4800	0.01	0.54	1.6	1	0	4
Liver extract	30	1	0	0	0.02	0.26	12.6	8.5	12.2	0	0	4.40	22.5	7	0	0
Liprotein	198	89	69	28	1.80	1.29	0.8	8.5	46.1	0	9.90	9.90	59.4	18	0	0
Ediol	172	0	86	22	0	0	0	1.5	0	0	0	0	0	0	0	0
Dextri-Maltose	298	0	0	292	0.04	0.09	2.4	5.1	11.3	0	0	0	0	0	0	0
Sodium chloride	3	0	0	0	0	0	0	51.0	0	0	0	0	0	0	0	0
Aquasol A	(2 gtt.)	0	0	0	0	0	0	0	0	3330	0	0	0	0	0	0
Drisdol	(2 gtt.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500
Ascorbic acid	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Water	1640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total prepared†	2715	141	176	343	1.96	2.22	24.6	93.5	86.7	9660	10.09	15.69	90.4	31	0.99	579
Total intake	2700	140	175	341	1.95	2.21	24.5	92.9	86.2	9600	10.01	15.61	90.0	31	990	575

* Total daily dietary: *protein*—140 gm. (2 gm./kg.), 16 per cent of total calories; *fat*—175 gm., 45 per cent of total calories; *carbohydrate*—341 gm., 39 per cent of total calories; *caloric intake*—3500 (60/kg.); *volume*—2700 gm. (300 gm. every 2 hr., 8 a.m. through midnight [9 times a day]).

† Allows 51-gm. aliquot for analyses.

allowed at night, which offers a convenient time for "make-up" feedings if any have been missed during the day. A typical schedule is: 300 ml. every 3 hr., seven times daily from 6 a.m. through midnight.

Calculations of the feedings are made according to the studies contemplated, which, in general, are concerned with elucidating the optimal dietary needs of the seriously injured patient. Consideration is given to the quantity and proportions of protein, fat, carbohydrate, minerals (sodium, potassium, calcium, phosphorus, iron) and vitamins (A, D, thiamine, riboflavin, niacin, pantothenic acid, ascorbic acid). Formulas are calculated so that there will be a gradual increase up to the maximum level of intake, preferably by the end of the first week after injury. Food composition is taken, as far as possible, from the latest edition by Bowes and Church (2). When special commercial products are used, the analysis of the sponsoring company are used. Each calculation allows for a 15-ml. aliquot to be saved four days a week for random laboratory analyses of total nitrogen, sodium, and potassium.

Preparing the Formula

A routine procedure is followed in preparing the liquid feedings. Suitable size glass or plastic beakers and a metal tray are labeled with each patient's name. Dry and liquid ingredients are weighed in the marked beakers on a balance (accurate to ± 1 per cent) and placed on the trays, which are then moved from the weighing counter to the blending area. Liquids are transferred to an electric blender, dry ingredients are added, and the total mixture is homogenized. Minerals and vitamins are added last. Each mixture is poured into a large pitcher, and an aliquot is weighed into a small bottle. The amount ordered per feeding is weighed into individual bottles labeled with the patient's name, the date, and the volume of feeding. The bottles are packed in wire baskets, delivered daily to the units for burn patients and refrigerated there in compartments marked for each patient. To lighten the preparation load on days when a diet aide is off duty, an extra set of feedings is made at intervals and stored in the diet kitchen freezer.

Several methods for controlling accuracy are part of the diet kitchen routine. All ingredients and the final mixtures are measured by weights rather than volumes. This results not only in more accurate but also more rapid preparations. The ingredients for each formula are listed in a composition book (one per patient) and checked off as they are weighed; an additional check mark is required as each constituent is added to the blender. Individual sets of bottles for each patient have been found to be an asset. The bottles differ in size, shape, and color so that no two patients have the same type of bottle. In this way, personnel in the diet kitchen and ward, as well as the patients themselves, have a way of identifying feedings in addition to the labels. A count of the feedings in the refrigerators is made twice a day: in the morning when rounds are made by the dietitians and in the afternoon by the diet aides when they deliver the formulas. A delivery book is used to indicate the hour, number of feedings delivered, and the number on hand. If the actual count differs from the expected number, the discrepancy is immediately investigated by the dietitian and the ward nurse.

Progress Notes

With regard to accuracy of intake, the nurse serves the feeding on a prescribed schedule to the patient who drinks it directly from the bottle through a quill. Following this, the patient drinks a small amount of water from the bottle, thus preventing loss of the formula which would otherwise be left in the bottom of the bottle (usually 10 to 15 ml.).

Eight records on each study patient are kept by the dietitians. These include: (a) initial calculation sheet (Table 1); (b) a record, filled in daily by the nurse, indicating the patient's nutrient intake, either oral, tube, or parenteral; (c) a composition book used daily in preparing the feedings; (d) a record of aliquots indicating calculated and analyzed content;

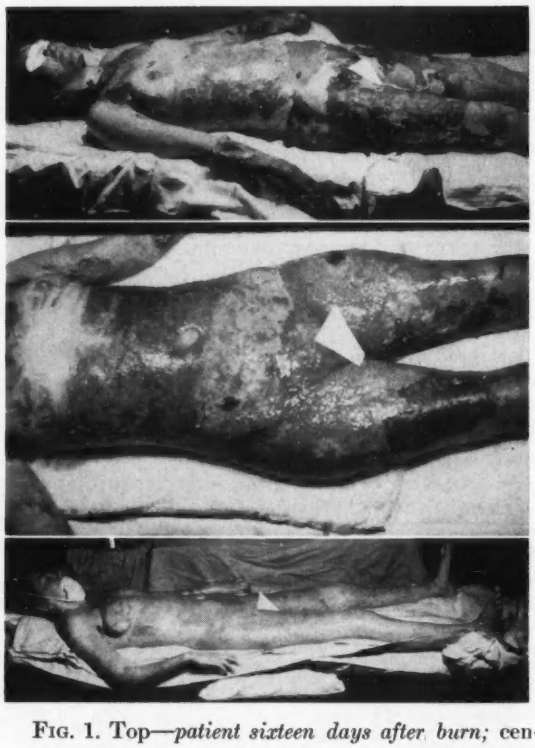

FIG. 1. Top—*patient sixteen days after burn;* center—*twenty-six days after burn, at which time some of the totally burned skin has already sloughed;* bottom—*patient five months after burn; all areas grafted and patient is healed.*

(e) a book showing the number of bottles of feedings per patient delivered to the wards each day and the number present at each checking time; (f) balance sheets on which are charted the calculated daily intake and analyzed daily output of the nutrients being studied; (g) graphs showing all or part of the following: nitrogen intake, output (urine and fecal), and balance; sodium and potassium intake, output, and balance; caloric intake; body weight; and pertinent blood chemistries (graphs are made with colored pencils and are kept on a daily basis while the study is in progress); (h) daily nutrition progress notes indicating general condition of the patient, gastrointestinal condition (such as vomiting, nausea, diarrhea, or constipation), urinary incontinence, body weight, laboratory data, surgical reports, and any other relevant information.

The progress notes are written in the wards by the research dietitians from their observations and talks with the patients, discussion with the ward nurses, and from current notations on the patients' charts. These records are later typed for the permanent file kept on each patient. Responsibility for taking complete nutrition progress notes is a rather unique one, and the time consumed in writing them is rewarding. The completeness and availability of these several records have been invaluable to the research team in considering the data (a) at intervals during current studies and (b) at the conclusion of one or more study phases.

During the past seven years over two hundred patients have been studied for periods of one week to five months with an average of four to five weeks. Approximately one hundred consultation patients have also been seen, many of whom have been given special feedings. Most patients have accepted the liquid diet regimen with few or no complaints, and many times the feedings have been taken with enthusiasm. Studies are being continued at the Medical College of Virginia, using the procedures discussed in this paper.

The techniques described herein are of general applicability. They were rapidly and effectively used by two of us[10] in Korea. There, as members of a research team from the Walter Reed Army Institute of Research and the Eighth Army, U. S., we studied thirty patients with epidemic hemorrhagic fever in a United States Army field hospital during a ten-week period in the fall of 1954. Most of these patients were followed for about four weeks each, and as many as nineteen were on balance studies at one time. The liquid formula routine was rapidly and satisfactorily adapted to field conditions and was used exclusively throughout the study.

Case History

The following case history is presented to illustrate a typical study patient at the Medical College of Virginia:

Patient #54-15(Fig. 1.): A thirty-one-year-old woman received a 55 per cent flame burn (30 per cent third degree) when her dress caught on fire. She was admitted 2 hr. later. Shock treatment consisted of intravenous infusions of blood; dextran, saline, and glucose in water. Compression dressings were applied, and the patient was kept in an air-conditioned room. She was hospitalized for five months, during which time she had thirteen dressings or debridements, one homograft procedure, and five autograft operations. Various antibiotics were given throughout her hospital stay. Healing progressed satisfactorily (Fig. 1); granulations were firm and healthy; the "takes" of skin grafts were good; the donor sites healed uneventfully.

During the first three days after injury, she was maintained on intravenous fluids. Half normal saline (0.45 per cent) was begun orally on Day *2*, skim milk feedings on Day *4*. On the fifth post-burn day, oral feedings of a liquid diet were begun, and by the seventh day she was consuming a diet providing 4 gm. protein and 45 calories per kilogram body weight. Thirty-five per cent of the calories were supplied by fat. The total daily intake was 245 gm. protein and 2750 calories. The level of intake was

[10] S. M. L. and E. A. L.

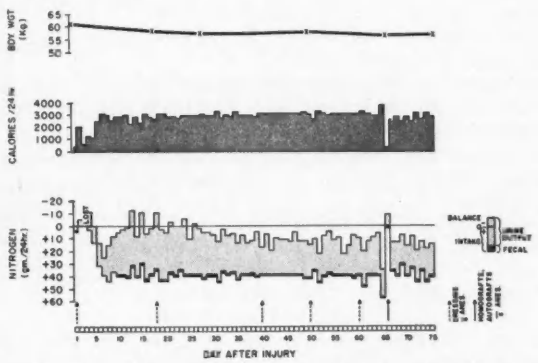

FIG. 2. *Body weight, dietary intake, and nitrogen balance of severely burned patient.*

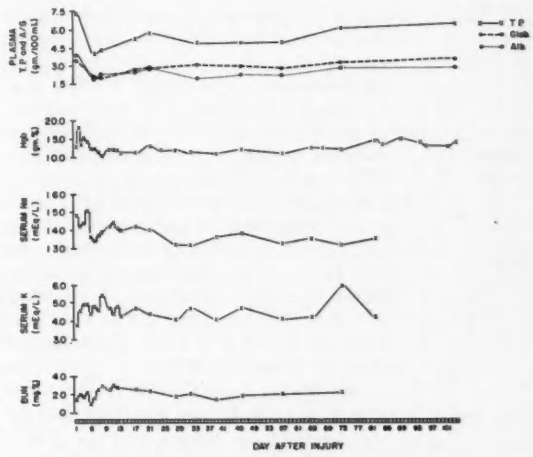

FIG. 3. *Plasma determinations and hemoglobin concentrations in severely burned patient.*

maintained with excellent tolerance throughout the study.

On admission this patient was in a good nutritional state and weighed a "normal" 60 kg. She had been in moderate negative nitrogen balance (on the average) during the first four days when her intake was low; but thereafter, on an average intake of about 40 gm. nitrogen daily and 2750 calories, she was in apparent nitrogen equilibrium or positive balance (the loss of nitrogen from the surface was not measured) (*Fig. 2 and 3*). Considering the severity of the burns, her weight loss was relatively small; the maximum loss was 5.4 kg. (9 per cent of her pre-injury body weight) by the sixty-sixth day, after which time she gradually regained the lost weight.

References

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(2) BOWES, A. DE P., AND CHURCH, C. F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. de P. Bowes, 1956.

BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Sir Thomas Barlow—September 4, 1845–January 12, 1945

The British Medical Association named the August 1935 issue of its journal *Archives of Diseases of Children* as the Sir Thomas Barlow Birthday Number. This issue contains ten outstanding articles on scurvy and ascorbic acid by leaders in the field and pays tribute to Barlow for identification and clarification of the symptoms of the disease of infantile scurvy.

Scurvy probably became less common after Lind's work (1753) and as fruits and vegetables became a more common part of the diet. With the introduction of dried patent foods for infants in the latter half of the nineteenth century, infantile scurvy became more common, although not recognized and clearly identified as such until 1883 when Barlow, following a careful study of thirty cases, published his paper "On Cases Described as 'Acute Rickets,' which are probably a combination of Scurvy and Rickets, the Scurvy being an essential and the Rickets a variable element." W. B. Cheadle, five years earlier, had described three cases of infantile scurvy in rachitic children. He, and especially Barlow, brought this disease to the attention of physicians and emphasized that it was amenable to treatment by diet; they recommended fruit juice, potato, and fresh meat juice for prevention and treatment.

When Barlow first showed that this infant disease was scurvy, the mortality rate was one in 4.5 cases; today, fortunately, cases are comparatively rare.

The photograph of Sir Thomas Barlow in the birthday issue of the journal shows him as a bespectacled, white-haired, white-bearded gentleman, friendly and kindly looking—one might even say fatherly; one of his colleagues described him as "downright kindly."

Thomas Barlow was born September 4, 1845 in Edgworth, Lancashire, the son of James Barlow and Alice Barnes. He obtained a Bachelor of Science degree from University College, London, at the age of twenty-two. At University College, where he served his residency, he was known for his shrewdness and sympathy. His early medical experience was at the Hospital for Sick Children, Great Ormond Street, London, and the Charing Cross Hospital. In 1879 he was appointed to the staff of University College Hospital. He studied fetal rickets, rheumatism and pleural effusion in children, and infantile scurvy, but he was interested in general medicine as well as pediatrics. He attended Queen Victoria in her last illness and was physician to the royal household, 1886–1910. He was elected a Fellow of the Royal College of Physicians in 1880, was its president (1910–1915), and in 1913 presided over the International Medical Congress in London. Not only was he a great physician, he also was an informed botanist and geologist and studied art and music. He was made a baronet in 1901, and many universities conferred honorary degrees upon him.

Thomas Barlow must have practiced the advice he gave to college students in an address in which he told them to burn little midnight oil; to avoid scratch meals or bolting food; to keep Saturdays for athletics and country walks; and to save time for reading the Bible, Shakespeare, essayists, and historians, and for music, drama, and good friendships. He lived all his ninety-nine years fully and retained to his death, January 12, 1945, his penetrating intelligence and much of his remarkable memory.

In 1880, Thomas Barlow was married to Helen Dalmahog. They had three sons, one of whom was killed in the war, and a daughter who was his companion for many years after the death of his wife in 1928.

REFERENCES: Sir Thomas Barlow Birthday Number. Arch. Dis. Child. 10: Aug. 1935; Barlow, T.: "On Cases Described as Acute Rickets." Medico-Chirurgical Trans. 66: 159, 1883; Obituaries. Nature 155: 197, 1945; Lancet 248: 131, 1945.—*Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.*

Sodium Content of Rennet Desserts[1]

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A RESTRICTED sodium diet has unquestioned advantages in the management of patients with cardiac and other disorders. A continuing problem, however, is to maintain palatability and provide variety in such diets.

It would seem desirable to be able to include attractive and nutritious desserts in such diets. Therefore, the present study was undertaken: (a) to determine quantitatively the sodium content of rennet powder[2] and (b) to provide a basis for calculating accurately the amount of sodium the finished rennet dessert would contribute to a sodium-restricted diet.

Method

Two samples of each of the seven flavors of rennet powder were analyzed by the flame photometric method. The percentage of sodium in each sample was thus determined, and the results for each pair of samples were averaged. The amount of sodium in each package of rennet powder (chocolate 58 gm., others 45 gm.) was then calculated. Finally, the sodium content of the finished dessert, taking into account the sodium content of milk (240 mg. per pint [1]), was determined. These calculations were based on use of one package of rennet powder and 1 pt. milk mixed to make four servings.

Findings and Discussion

A detailed summary of this analysis is given in Table 1. The amount of sodium in rennet powder was found to be extremely low, ranging from 0.002 per cent for raspberry flavor to 0.071 per cent for chocolate. The percentage of sodium in all other flavors hovered around the lower, almost negligible level. The sodium content per package was correspondingly low. A package of raspberry flavor, for example, contained 0.9 mg. sodium or 0.22 mg. per serving. Thus, one serving of finished raspberry rennet-custard would provide 60.22 mg. sodium, since ¼ pt. milk contains 60 mg. sodium. The sodium content for all other flavors of the finished dessert was at approximately this level, except chocolate, which contained 70.3 mg. per serving.

Rennet custards have a lower sodium content than that reported by manufacturers of various starch-thickened puddings and tapioca (2). The lowest sodium content reported in a group of prepared cornstarch and tapioca puddings was 118 mg. per serving while some instant puddings contain 325 to 545 mg. per serving. Even prepared gelatin desserts have, in general, a higher sodium content than rennet custards. Table 2 shows the sodium content, as reported by two leading manufacturers, of ½-cup servings of nationally distributed pudding mixes prepared with whole milk. Figures for two brands of gelatin desserts are also given.

The amount of sodium in rennet custard is little more than that contained in milk itself. Hence, rennet custard can readily be included in sodium-restricted diets whenever fresh whole or skim milk is permitted, as in the basic 500-mg. sodium diet of

TABLE 1 **Sodium content of rennet powder***

RENNET DESSERT	SODIUM				
	In packaged mix			In milk	In finished dessert
	%	mg./pkg.	mg./serving	mg./¼ c.†	mg./serving
Chocolate	0.071	41.2	10.3	60.0	70.3
Lemon	0.009	4.0	1.0	60.0	61.0
Maple	0.0075	3.4	0.85	60.0	60.85
Orange	0.0125	5.6	1.4	60.0	61.4
Raspberry	0.002	0.9	0.22	60.0	50.22
Strawberry	0.0035	1.6	0.4	60.0	60.4
Vanilla	0.0025	1.0	0.25	60.0	60.25

* These calculations are based on one package of rennet powder and 1 pt. milk (containing 240 mg. sodium) mixed to make four servings (½ cup each).

† Quantity used per serving.

[1] Received for publication September 21, 1956.

[2] "Junket" Brand Rennet Powder used in this study was furnished by "Junket" Brand Foods, Little Falls, New York.

TABLE 2 Sodium in finished desserts made from nationally distributed pudding mixes (made with whole milk as directed on package)

FLAVOR OF DESSERT	BRAND A	BRAND B
Cornstarch Puddings		
	mg./½ c. dessert	*mg./½ c. dessert*
Butterscotch	250	380
Chocolate	190	139
Vanilla	182	119
Tapioca Puddings		
Chocolate	182	118
Orange-coconut	182	190
Vanilla	182	120
Instant Puddings		
Butterscotch	490	393
Chocolate	545	385
Coconut cream	325	385
Strawberry	380	377
Vanilla	350	385
Gelatin		
Most popular flavors	68+*	85+*

* Depending on sodium content of water used.

the Food and Nutrition Board of the National Research Council (3).

Minimal sodium diets, allowing 225 mg. or less of sodium, usually exclude milk unless it is processed to remove most of the naturally occurring sodium. Rennet powder may not coagulate low-sodium milk prepared by the ion exchange process or fabricated low-sodium milk powder.

Summary

The sodium content of rennet powder was determined by the flame photometric method.

The quantity of sodium in rennet powder was negligible. Thus, the sodium content of finished rennet custards barely exceeds that of milk itself.

Rennet powder can be used in any sodium-restricted diet in which fresh whole or skim milk is permitted.

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(2) Manufacturers' analyses as reported.
(3) Sodium-Restricted Diets—the Rationale, Complications, and Practical Aspects of Their Use. Natl. Acad. Sci.—Natl. Research Council Pub. 325, July 1954, p. 16.

Effect of Spices on the Stomach

Can spices be used to increase the palatability of therapeutic diets for patients with peptic ulcer without causing side reactions or lengthening the healing time of the ulcer? A study reported recently by Gray and co-workers suggests that some of the milder spices may be used in moderation.

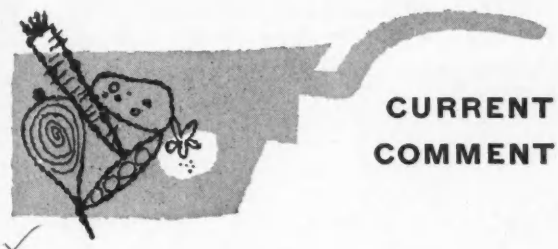
These researchers maintained fifty patients with active peptic ulcer, with craters demonstrable by X-ray, on a routine ulcer regimen, including a progressive ulcer diet, interval feedings, antispasmodics, and antacids. They were given, in addition, for periods up to 180 days (average 40 days), a capsule containing a spice, the nature of which was unknown to the patient, three times a day, with meals.

The dose of spice was determined by its usage in highly spiced recipes and varied from 0.05 gm. to 0.9 gm., depending on the individual spice. For example, with cloves, the dose was 0.05 gm., but for cinnamon, 0.9 gm. was given three times daily, since four slices of cinnamon toast require about 0.9 gm. cinnamon. Thus the test was reasonably severe, because the amount of spice used was the amount recommended in rather highly spiced recipes and it was given in capsules that dissolved in the stomach, releasing the dry spice directly.

The spices tested were: cinnamon, nutmeg, allspice, thyme, sage, paprika, caraway seed, chili pepper, cloves, black pepper, and mustard seed.

When the spices were taken with the meals, symptoms developed in only five of the fifty patients: two with black pepper, one with chili pepper, one with nutmeg, and one with ground mustard seed. Black pepper and chili pepper produced the most severe gastric distress. Cloves caused belching ½ hr. after meals in one patient with inactive duodenal ulcer. With all of the spices, symptoms such as heartburn, after-taste, belching, and epigastric distress often occurred if the spices were taken on an empty stomach.

Thus, these workers concluded that, with the exceptions noted, the spices did not exert an injurious effect and did not alter the healing time of the peptic ulcer. Black pepper, chili pepper, cloves, mustard seed, and probably nutmeg, however, may be considered gastric irritants.—*Abstracted from: Schneider, M. A., DeLuca, V., Jr., and Gray, S. J.: The effect of spice ingestion upon the stomach. Am. J. Gastroenterology 26: 722 (Dec.), 1956.*



CURRENT COMMENT

In Search of Words

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IN THE summer of 1952, a number of members of The American Dietetic Association attended the First International Congress on Dietetics held at The Hague, Netherlands. Margaret A. Ohlson, Ph.D., our President that year and representative at this meeting, reported that there was much confusion in terminology and a lack of common understanding of the professional position of the dietitian. As a result, she appointed a committee to define more clearly the term "dietitian" as it is understood in the United States, so that it could be more easily interpreted to workers in the field in other countries. In 1955, the committee submitted its report on the definition of "The Professionally Qualified Dietitian" as interpreted by The American Dietetic Association. It reads as follows:

A *dietitian* is a member of the profession of dietetics which deals with the science, technical aspects, and art of feeding people.

The *education* prescribed by The American Dietetic Association is a bachelor's degree with special emphasis on the social, physical, and biologic sciences and the application of these to the study of dietetics and food administration, followed by a year of dietetic internship approved by The American Dietetic Association or comparable supervised experience. This core of educational and professional training can form the basis for graduate study leading to advanced degrees or specialization in the various fields of dietetics.

A dietitian's *responsibilities* include scientific menu planning; the direction and supervision of the technical, business, and educational aspects of providing adequate food for individuals or groups; and the planning of therapeutic diets as prescribed by the medical profession.

A dietitian is qualified to be a member of the administrative staff and to direct the operation of a dietary department in hospitals, schools and colleges, and commercial cafeterias and restaurants. A dietitian may also serve as an administrator, teacher, research worker, or consultant in public or private agencies dealing with the promotion of health and the prevention of disease through better food practices.

Out of any assignment can come fun as well as work, for from the immediate task at hand comes a new interest and challenge. Such an interest developed when we found ourselves confronted by confusion even in terms which we use very commonly. Two terms particularly seemed to need clarification, "dietitian" and "nutritionist." I decided that it would be helpful to go back to the early derivations of these words and some of the early philosophy of the profession.

In reading the early writings of home economists, the word "dietitian" seemed to carry the connotation of sickness and to be concerned with a hospital. Is that the connotation today? The word "nutritionist" does not even appear in early writings or in fact in early dictionaries.

By a study of the original root and the affixes that have been added, one can learn the true meaning of the words, for example: *dietet-ist* (pure Greek)—meaning an agent or person concerned with diet; *nutrition-ist* (from Latin, *nutrire*, to nourish, act of nourishing)—is concerned with the actual feeding, as a mother or wet nurse, and refers to the specialization of the act of nourishing.

This discussion led to a desire to find out the true meaning and derivations of many of the other terms which we commonly use. By consulting both the Oxford (1) and Webster (2) dictionaries, the following definitions were found.

A Study of Words

(Numbers in parentheses indicate the source of the definition which is quoted.)

DIET (Greek, *diaita*, mode of living)

(1) To feed; to put (a person) to a specific diet; to fix, prescribe, or regulate the food of (a person, etc.) in nature or quantity for a purpose—as a regimen of health; "Customary course of living as to food; way of feeding"; prescribed source of food, restricted in kind or limited in quantity, especially for medical or penal reasons. An allowance or provision of food.

(2) Habitual course of living, thinking, reading, or specifically feeding; hence, food and drink regularly provided or consumed; also, fare; the kind and amount of food selected with reference to a particular state of health; prescribed allowance of food.

DIETER (rare)

(1) One who regulates the diets of himself and others; a feeder.

(2) One who diets; one who prescribes food, or who partakes of it, according to hygienic rules.

DIETARIAN—(2) one who diets; a dieter.

DIETARY

(1) (noun) A course of diet prescribed or marked out; a book or treatise prescribing such a course; an allowance and regulation of food, as for inmates of a hospital, workhouse, or prison.

(1) (adjective) Of or pertaining to diet, of the nature of a diet.

(2) (noun) A rule of diet; a treatise or book pre-

scribing such a rule; also, a fixed allowance of food, as in a workhouse, prison, etc.

DIETETIC

(1) Of or pertaining to diet, or to the regulation of the kind and quantity of food to be eaten, especially as a branch of medical science. "The dietetic treatment of disease is destined to be the great work of the future" (Parkes, 1869). "The curious diætic whose business it is to inquire into various ways of living" (Stillingfl, 1759).

(2) Of or pertaining to diet, or the rules for the kind and quantity of food to be eaten.

DIETETICS

(1) The part of medicine which relates to the regulation of diet.

(2) The science and art dealing with the application of principles of nutrition to the feeding of individuals or groups under different economic or health conditions.

DIETIC (Latin, keeping a daily course)—(1) Of or pertaining to diet. "The best dietic rules for preserving health" (Barry, 1775). [Dietic] diseases caused by inattention to wholesome rules of diet" (1883).

DIETIST (Greek)

(1) One who professes or practices dietetics or some theory of diet.

(2) One skilled in dietetics; a dietician.

DIETITIAN (Latin); DIETICIAN (Greek)

(1) One skilled in diet, practicing diet.

(2) One who is versed in, or practices any branch of, dietetics; as, a therapeutic or public health dietitian.

NUTRIENT (Latin, *nutrire*, to nourish)

(1) Serving as nourishment; possessing nutrimental qualities; a nutritious substance.

(2) Furnishing nourishment; a nutritious substance; a nutritive ingredient (of food or a food).

NUTRIMENT

(1) That which nourishes; food; nourishment; nourishing food. "The action of the nutriment supplied to the body" (Bain, 1855).

(2) That which nourishes; anything that promotes growth and repairs the natural waste of animal and vegetable life; nourishment; food.

NUTRITION

(1) The action or process of supplying, or of receiving nourishment.

(2) Act or process of nourishing or being nourished; the sum of the processes by which an animal or plant absorbs, or takes in and utilizes food substances.

NUTRITIOUS (Latin, *nutrix-nutric*, a nurse)

(1) Serving as nourishment; capable of supplying nutriment.

(2) Nourishing; promoting growth and repairing natural waste; nutritive.

NUTRITIVE

(1) Having the property of nourishing; of, pertaining to, or concerned in nutrition; giving or providing nourishment; a nourishing article of food.

(2) Of, pertaining to, or concerned in, nutrition, as nutritive functions; affording nourishment; nutritious, as nutritive food.

NUTRITIONIST—(2) One professionally engaged in investigating or solving problems of nutrition.

MANAGER

(1) One who manages; the conductor (of an affair); one whose office it is to manage a business establishment or a public institution.

(2) A person who conducts business or household affairs with economy and frugality.

SUPERVISE—(1) To look over; to oversee, have the oversight of, superintend execution or performance of (a thing), the movements or work of (a person).

SUPERVISOR—(1) One who inspects and directs work of others.

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Relations between the Dietary and Accounting Departments[1]

JOHN K. PORTER

Assistant Director
Barney Convalescent Hospital
Dayton, Ohio

IS THERE a conflict of thinking and interest between the dietitian and the accountant? Such conflicts, when they exist, can be resolved by understanding.

[1] Presented before the Dayton Dietetic Association on May 14, 1957.

It will be our purpose to try to create an understanding of the purposes behind the accountant. For this discussion it should make little difference whether we are dealing with a profit-motivated organization, such as a restaurant or hotel, or a nonprofit organization, such as a hospital or school.

In Edward L. Bernays' book, *An Outline of Careers* (1), there is a quotation of Alvin Charles Ernst, one of the founders of the public accounting firm of Ernst & Ernst: "A business executive, to manage his establishment properly, must be guided by timely

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Iron	4.46 mg.	1.5 mg.
Calcium	.58 gm.	.31 gm.
Phosphorus	.46 gm.	.33 gm.
Vitamin A	2380 I.U.	940 I.U.
Thiamine	.77 mg.	.14 mg.
Riboflavin	1.64 mg.	.56 mg.
Ascorbic Acid	25.7 mg.	3.0 mg.
Vitamin D	161 I.U.	31 I.U.
Cholesterol	38.4 mg.	299 mg.
Calories	270	291 mg.

*Eggnog nutritive value from Bowes & Church, 7th Ed. 1951

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and dependable information about it. He must base his plans, decisions and instructions on exact knowledge of its financial condition and operation. Without such knowledge, he travels in the dark, making avoidable mistakes, overlooking preventable leaks and waste, and incurring unnecessary losses which frequently result in failure."

From this we can see the accountant's work, whether of a financial or statistical nature, is not solely for the purpose of keeping records. It is to assemble historical information for management's use. By management we do not mean just the principle executive of the organization; we would include all department heads as well.

In its outline of the duties of the principle accounting officer, the controller, the Controllers Institute of America has stated that the accountants' duties are: "To establish, co-ordinate and maintain through authorized management an integrated plan for the control of operations." This involves the use of income, expense, and capital expenditure budgets and cost accounting or cost analysis.

The accountant, in dealings with other department heads, should never issue orders and instructions. He can guide in the development of procedures, forms, and instructions and co-ordinate and assemble the figures in presentable form. These, then, are used to measure the performance against the administrative plans and to interpret the results of operations. The figures which are issued by the accountant for the use of the administrator or department head do not originate in the business office. The information which goes into these reports comes from the departments and is the responsibility of the department heads.

Records in the Dietary Department

Among the accounting records which the dietary department handles routinely are purchase orders, receiving records, payroll records, and statistical information. We will make no recommendation as to the method employed. We will simply outline the type of record, the basis on which the report is made, and the purpose to which the accounting office will put the information.

(a) *The purchase order* is a written form stating the name of the vendor, the date ordered, and the items purchased including quantity, name, description, and—where possible—a price quotation. These records may originate in the dietary department, purchasing office, or—in small organizations—on the desks of the administrator or manager. One copy of the multiple-part form will be matched with the approved invoice and promptly forwarded to the accounting office. The use of the purchase order assures the accountant that he is paying for an authorized purchase and serves as a guard against duplicate payments.

(b) *Receiving records* originate at the point where the merchandise is accepted, either the kitchen or the dietary storeroom. These include a listing of the items and quantities received. Notations can be made on the purchase order or on a separate record form. The receiving slip enables the accountant to know that the items billed and approved for payment are the ones ordered and have actually been received.

(c) *Invoices* on receipt will be matched with the purchase order and the receiving slip. It is much easier to work out problems connected with the billing or merchandise received before payment is made. The approved invoices are forwarded to the accounting office where they are prepared for payment. Invoices for expense items are posted to the proper expense accounts. This information is used in the preparation of periodic financial statements for management and the board of directors.

Invoices for inventory items are posted to the *inventory records* which may be kept in the dietary department, purchasing office, or the accounting office. Invoices for equipment purchases or capital expenditures receive special handling and are used to maintain *plant and property records* for insurance and tax purposes.

(d) *Stores requisitions* are written for all material withdrawn from inventory. The requisitions are the basis for posting to the inventory records and preparation of periodic reports to the accounting office. These reports, when priced and posted to the proper expense accounts, are reflected in the financial statements.

(e) Most departments are responsible for their own work schedules. *Payroll records* or *time cards* should be received and approved by the department head before forwarding to the accounting office. Even where there is a personnel department, basic information on employment and salary schedules must be co-ordinated with the dietary and accounting departments. Vacations and sick leave must be authorized by the department head. All records of employment, salaries, salary increases, transfers, and terminations must be noted and forwarded to the payroll clerk so the proper pay checks may be prepared. Records for which the accounting office is responsible in connection with payroll are Social Security, withholding and city income taxes, deductions for hospitalization and medical benefit insurance, retirement plans, Community Chest and Red Cross contributions, and savings bonds. Additional records must be maintained when room, meals, or uniforms are furnished by the employer.

(f) *Statistics* are also important to the accountant in computing costs and volume of performance.

The summary of all these records furnished to the accountant appear in the financial reports, the expense budget, the income budget, the capital expenditure budget, which are the tools used by management. When these records are completed, the final figures in report form should be forwarded to the

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administrator and to the responsible department head. The analyses which accompany reports done by the accountant must be completely impartial; he must have the courage to present facts, being careful that his facts are kept free of personalities. The accountant's relationship with other departments in the organization places a heavy responsibility on him for he must remain objective in his thinking.

In the medical field we hear about the use of preventive medicine which is made possible by today's modern diagnostic procedures. In maintenance programs, we strive for a preventive maintenance schedule which will reduce the cost of breakdowns and repair. In the accounting field, we are striving towards a diagnostic and preventive approach rather than a purely historical one. This is possible through the use of income, expense, and capital expenditure budgeting based on cost figures which enable forecasts to be made. However, for these to be of any value they must be accurate, and, like a hot meal, served promptly. We, in the accounting field, cannot prepare a good, nutritious meal. We *can* help you to know whether the meals you are serving, at the prices you are charging, will lead to failure or to an economically successful operation.

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Ohio State Interns Visit Army Interns

In May, the dietetic interns at Walter Reed Army Hospital, Washington, D. C., were hostesses for four days to interns of Ohio State University Hospital, Columbus. Arrangements were made cooperatively by Lt. Col. Helen Davis, Chief, Dietitian Section, Army Medical Specialist Corps, and Grace Stumpf, Director, Dietary Department, Ohio State University Hospital.

On arrival in the morning of May 16, the visiting interns were taken almost immediately on a field trip to the Clinical Center, National Institutes of Health, Bethesda, Maryland, where Edith Jones, Director of Dietetics, explained the activities of the Center. In the afternoon, the group returned to Walter Reed for an introduction to the Food Service Division, the library, Metabolic Research Unit, the chapel, and the Institutes of Research and Pathology.

On the following day, each Ohio State intern was "assigned to duty" with a Walter Reed intern so that she could share the experiences and observations of the Army intern "on the job." In white clinical coats and hair nets, the Ohio State interns observed the "tools of management" with which the Army interns work, such as the cook's work-sheet, master menu, standardized recipe file, ordering guides, diet check lists, and the nutritional analysis.

In the kitchens they made up the daily requisition for food items for the regular and modified diets, checking the storeroom and refrigerator inventories to see what was available; conducted the daily cooks' meeting to discuss the day's menus as listed on the cook's work-sheet; sampled cooked food for flavor and palatability prior to serving; checked the serving of food to food carts for bed patients and the serving of regular and modified diets on cafeteria lines, as well as the general supervision of the kitchens and dining rooms.

In the Production and Service Branch Office, the daily food requisitions from the three kitchens and dining rooms were checked against the menu and ordering guide, and a consolidated meat and pastry order was compiled for the three areas. The Ohio State interns were shown how the Army writes the regular and modified standard house diets, using the master menu, the recipe file, and a survey of preferences as aids. They learned about Army regulations and training manuals and even chains of command in the Food Service Division. The "nutritional analysis" was of special interest as a technique. Food items are listed on a form according to the groupings in the short method of evaluation, with all nutrients indicated across the top of the form. A second form is used to record the summarized data for several days. On this appear both the National Research Council's Recommended Dietary Allowances and those for the Army. The computed figures are thus easily compared with the standards.

Interns assigned to the Ward (similar to a floor in a civilian hospital) Food Service visited patients and the ward diet kitchens to observe how trays are set up, checked, and served, and learned how the census of bed patients was compiled and the food charted for each diet kitchen.

Before returning to Columbus, the Ohio State interns also visited the Army Hospital at Ft. Belvoir, Virginia, where they met three Walter Reed interns having their affiliation for experience with the Army Health Nursing activities.

The Army interns report that they feel that sharing their learning experiences made them much more meaningful and enthusiastically recommend such exchange of visits to other interns. The Ohio State interns were equally enthusiastic and felt that the trip gave them a fresh approach to their work and strengthened them with a wealth of new ideas.

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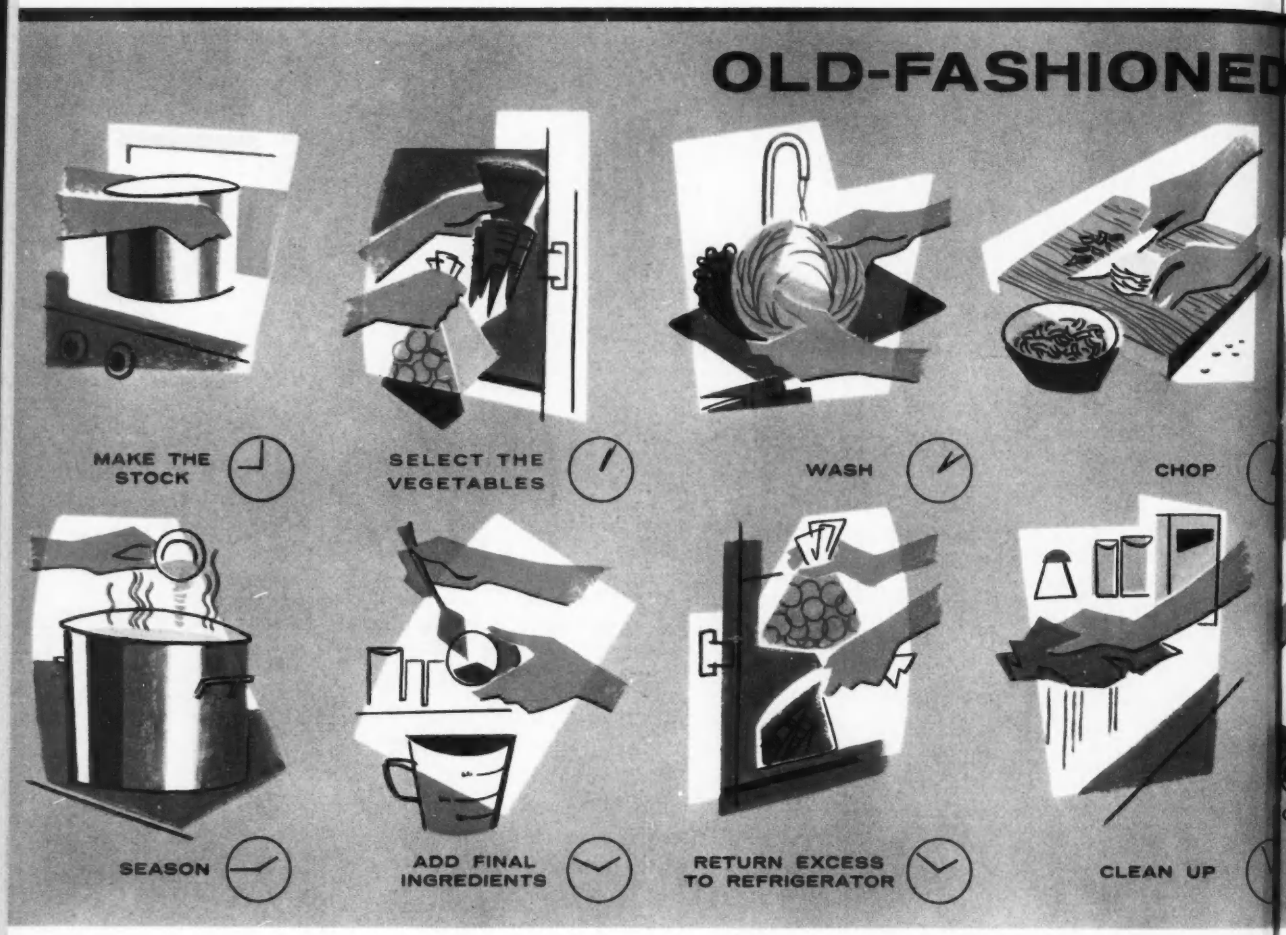

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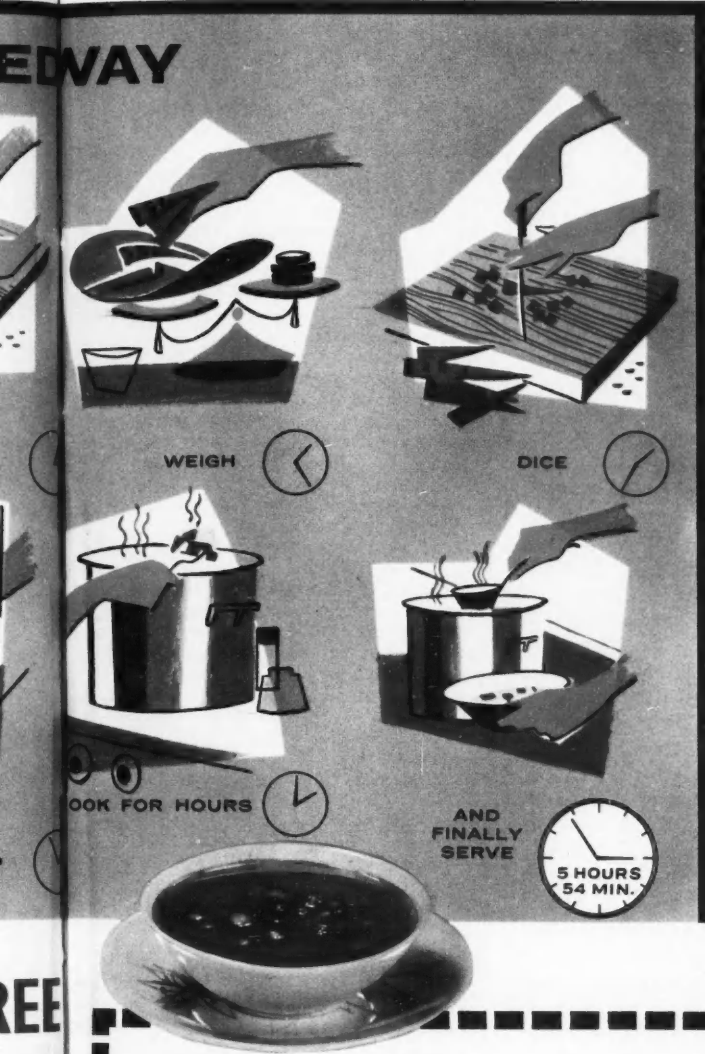

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Is Your Diet Manual Up to Date?

Are some of your diets obsolete? Have you revised your diets recently in line with the newer findings in clinical nutrition? Do your diets need to be renamed, redefined, and described in terms of dietetic principles? These are important questions today, but they are not new.

In 1931, members of The American Dietetic Association were actively working on the complexities of diets named after doctors, diseases, and many miscellaneous symptoms. The lack of consistent principles, nutritional inadequacies, and overlapping produced much confusion, controversy, and strain on the dietetic services. At that time, Grace Bulman, as chairman of a committee of the Diet Therapy Section, began by collecting routine hospital diets used in sixty-five Class A hospitals in various parts of the country. With characteristic understatement, it was reported: "These show a wide variation as to nomenclature and type of foods included" (1). Margery Ardrey, as chairman in the following year, carried on with some descriptions of diets (2).

By 1939, the situation had reached the place where members felt the need for further revisions in nomenclature and descriptions of therapeutic diets which, among other things, would reflect the principle propounded earlier by Dr. Ruth Wheeler—that such diets should be regarded as modifications of the normal diet. At this point, Sister Jeanne d'Arc was appointed chairman of a committee to develop a glossary of dietetic terms. After two years of serious effort, a mimeographed list of terms was compiled and submitted to over two hundred members of the Association for review (3, 4). In the end, much order had been brought about by naming and describing diets in terms of dietetic principles rather than after doctors and diseases. Official use was made of this "Glossary of Dietetic Terms" in the first edition of the *Handbook of Diet Therapy* compiled for The American Dietetic Association in 1946 (5). Diets were named, defined, and described as set forth in this glossary.

By 1948, rapid strides in the field of clinical nutrition again brought members to the realization that correction of inaccuracies, deletions, and additions were in order. Dr. Hazel Hauck, as chairman, and Dr. Helen Pilcher and Beatrice Finkelstein took the matter in hand making extensive changes to bring the Glossary more closely in line with the newer findings in nutrition and the wishes of the members. This revision was completed in 1950 and was used in naming and describing diets in the Revised Edition of the *Handbook of Diet Therapy* in 1952 (6). The complete Glossary appears in this edition.

But there was to be no "resting." Members in 1956 were ready to reconsider the content of the Glossary. Under the chairmanship of Lorraine Weng, a committee of the Diet Therapy Section solicited opinions and recommendations from the state diet therapy chairmen. In response to a question, "Do you use the Glossary of Dietetic Terms in naming and defining diets in your hospital manual?" approximately 70 per cent replied that they used it in some degree; 30 per cent said they did not.

Since the purpose of the Glossary is to provide aid in the naming and description of diets as well as in the use of other related terminology in diet manuals, will you submit suggestions for the new revision? Do you have diets which you would like to see added, deleted, or redefined in the Glossary? Do you have other terms which you would like to see excluded or included? Your comments, suggestions, and recommendations will be welcomed. Take your pen in hand and write a letter to the editor.

Viewpoints

Grace Bulman, *Chief, Dietetic Division, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.:*

Our concern over terminology used in diet manuals is certainly not an awakening of the 1950's. But why haven't we made more progress in becoming professional by abandoning diets named after doctors or specific diseases? What are our stumbling blocks? What approaches could we use to help us "grow up professionally" in this respect?

When A.D.A. became an entity, most of the dietitians sat at the elbows of the doctors eager and proud to assist in patient treatment, and as the doctors commanded. In those early times, many "special diets" were born: the Sippy diet, the Newburgh diet, the ulcer diet, the gall-bladder diet, to name but a few. They have proved to be robust offspring and have lived on and on.

Long ago we attained the professional stature that has let us take our place on the same level with all other patient treatment groups. We are there to share the knowledge of our specialty and to gain cooperation to reach our objectives.

An article, in the March 1941 JOURNAL by Dr. Eugne F. DuBois[1], gave us an excellent stepping stone which I fear hasn't been used to best advantage. He said, "I am tilting at the windmills of fancy, special diets. In our own hospital and in most other hospitals the dietitians are so cooperative and so obliging that they will add to the list almost any diet requested by one of the attending doctors. Acceptance of a special diet usually depends on the doctor's rank and vehemence rather than on his knowledge of nutrition. Hence, the multiplicity of special diets—windmills, not mills of the gods." He made the recommendation that each hospital have a medical-dietary committee, whereby the dietitians could educate the doctors that slight modifications of the normal diet would fill the dietary prescriptions in most instances. In this way, "Dr. Blank" could be tactfully guided to see that his special "Blank diet" was not necessary or in the best interest of the patient's welfare.

It would seem that the way to solve

[1] DUBOIS, E. F.: Fewer and better diets. J. Am. Dietet. A. 17: 199, 1941.

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our problem is one of accelerated education and close working relationships with the doctors. We must be professionally and diplomatically convincing that "we know our business"!

Staff Dietitians, *Hartford Hospital, Hartford, Connecticut:*

When we prepared a diet manual for Hartford Hospital in 1954, we used the *Handbook of Diet Therapy* as the basis for terminology and interpretation of some of the diets. The *Handbook* commanded respect and proved a most useful tool in attaining a common denominator for prescribed diets by our attending and house staff.

The term "restricted" in the sodium-restricted diet in the Glossary of Dietetic Terms was used as the key for determining the descriptions to attach to diets. For uniformity, we applied "restricted" or "increased" to fat, calories, cholesterol, fiber, and so on, with the request for prescribed levels.

May we suggest elimination of the terms "high" and "low" from the present Glossary in the *Handbook*? How high is "high" and how low is "low"? Interpretation on this point may vary widely.

Is it necessary to include a soft diet if there is a restricted fiber diet and if the individual patients' needs are considered?

Should lente be included as an additional type of insulin?

We hope that more hospitals will accept the terms and descriptions in this Glossary, which in turn will result in better understanding and interpretation of diet therapy throughout the entire country.

Lorraine Weng, *Chairman, Project #4, 1955–1956, Diet Therapy Section, "Suggestions for the Revision of the* Handbook of Diet Therapy":

The question, "How could the Glossary be made more useful?" elicited many comments and is of particular consequence when considering possible revisions. Conflicting opinions present a challenge. Several people questioned the need for a glossary on the basis that most terms can be found in a standard medical dictionary. On the opposite side are those who feel the Glossary should be expanded to include more conditions, diseases, and more medical terms related to diet therapy. What is your opinion?

Specific suggestions were to include a partial list of prefixes and suffixes used in medical terminology, medical terms, and test meal diets; and to include more information which would aid in pronouncing terms.

The suggestion to simplify the Glossary is a useful one. Your comments on how to accomplish this would be most helpful.

Because the purpose of the Glossary is to provide aid in the naming and description of diets as well as in the use of other related terminology in diet manuals, will you submit suggestions for the new revisions? Your comments, suggestions, and recommendations will be welcomed.

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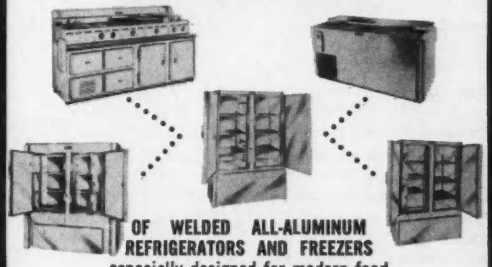

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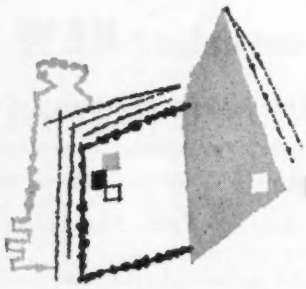


BOOK REVIEWS

Meal Planning with Exchange Lists. Toronto: The Canadian Diabetic Association, 1957. Paper. Pp. 16. Price 25 cents.

"This booklet was modeled on a similar one which was prepared by the American Diabetes Association, but it has been modified and applied to life in Canada, and to the slightly different measures which are in use in this country. If you should travel across the American border, this Canadian diet equivalent list will be of great assistance"—so reads the introduction to this Canadian version of the diabetic Exchange Lists.

On first reading this attractive booklet, one notices the marked similarity in style and layout to the American book. However, on closer study, one realizes that this introductory statement is a misrepresentation of the relationship to the exchange system developed in the U. S.—and not by the American Diabetes Association alone, as stated in the quoted introduction above, but jointly by the American Diabetes Association, The American Dietetic Association, and the Diabetes Branch, U. S. Public Health Service. The relationship of this Canadian "exchange system" to that used in the U. S. is more in name than in reality, and the differences are of the same degree that stimulated the original U. S effort at standardization. In the U. S., an effort was made to select "exchanges" which were common measures of sufficient accuracy in purchasing or in measuring that weighing would be unnecessary.

This booklet uses lists of vegetables and weight with a precision suggesting pseudo accuracy: for example, 180 gm. canned tomatoes are equal to 175 gm. raw tomato and to 165 gm. tomato juice; and green onions weighing 65 gm. are equal to 70 gm. mature raw onion.

Other discrepancies occur. "Free foods" are divided into Lists A and B. List A may be used "as desired to add zest" (incidentally the zest to be added by mineral oil may be open to question—a practice long discouraged in the U. S.). List B foods may be added up to three servings a day. According to this, 5 stalks of asparagus may be used up to three times daily, while asparagus appears on the vegetable exchange list where 10 to 15 stalks are counted as 7 gm. carbohydrate.

The fat exchanges have been divided into Groups A and B, depending, it seems, on the possibility of some carbohydrate content. In the meat exchange list, one lamp chop weighing 30 gm. (no bone) is equal to "1 small chop (3 oz. raw)," while on the opposite page are the meat pictures from the American book showing 2 lamp chops equal to 3 oz.

While the equivalents used in this plan are quite different from the "exchanges" used in the U. S., this book will serve as a step forward in standardization in Canada—and as such, it is certainly to be commended.—*Joan Anders, Nutritionist, University of Chicago Clinics.*

Foods of Old New England—A Cookbook. By Marjorie Mosser with introduction and notes by Kenneth Roberts. Garden City, N. Y.: Doubleday & Company, Inc., 1957. Cloth. Pp. 428. Price $4.95.

"The Forgotten Marrowbone"; "Dissertation on Pasta and Italian Cooking"; "Eels"; "Hot Buttered Rum"; and an introduction pleading for perfect eggs, coffee, and baked beans are delightful literary additions to a practical, useful volume of marvelous recipes. This book is obviously a labor of love by Marjorie Mosser, a skilled cook and secretary to her famous author uncle, Kenneth Roberts.

Here are the familiar dishes one expects from New England—fish chowder, corn oysters, applesauce cake, Indian pudding, raspberry slump, buckwheat cakes, and hundreds of others. There are some surprises, too, such as the "Official Fish House Punch," "Difficult (and Best) Dry Martini," minestrone, bachamella, tamale pie, blinis, and gnocchi.

Some familiarity with cooking terms and preparation methods is assumed by the author, so this may not be an ideal gift for the novice cook. But, it is a treasure in the library of the person who likes to cook, loves to eat, and enjoys colorful essays on life's generous gifts.—*Virginia Monahan Bayles, % Dr. Spencer Bayles, Baylor University College of Medicine, Houston.*

Dorland's Illustrated Medical Dictionary. 23rd edition. Philadelphia: W. B. Saunders Company, 1957. Fabricoid. Pp. 1598. Price $12.50.

The twenty-third edition of *Dorland's Illustrated Medical Dictionary*, with more than seven hundred illustrations and fifty plates, has now appeared.

The definitions of "diet" are of particular interest. Contrary to the modern practice of naming diets in terms of dietetic principles, diets are named primarily in terms of doctors and diseases. Even in these categories, the definitions are of greater value from an historic than a modern viewpoint. A diabetic diet is: "one in which ordinary sugar, starchy food, fruits, and ordinary bread are prohibited." The "rheumatic diet" is "a diet devised to meet the requirements of rheumatic patients."

Other diets included: "provocative diet, a diet designed to include the more common allergenic foods, from which they are eliminated one by one, as a means of determining the offending substances in cases of food allergy"; "protective diet, an extremely light diet employed for the purpose of lessening the work of the digestive apparatus as much as possible"; "subsistence diet, a diet on which one can just live"; and the "absolute diet, fasting." All have an aura of history rather than scientific value.

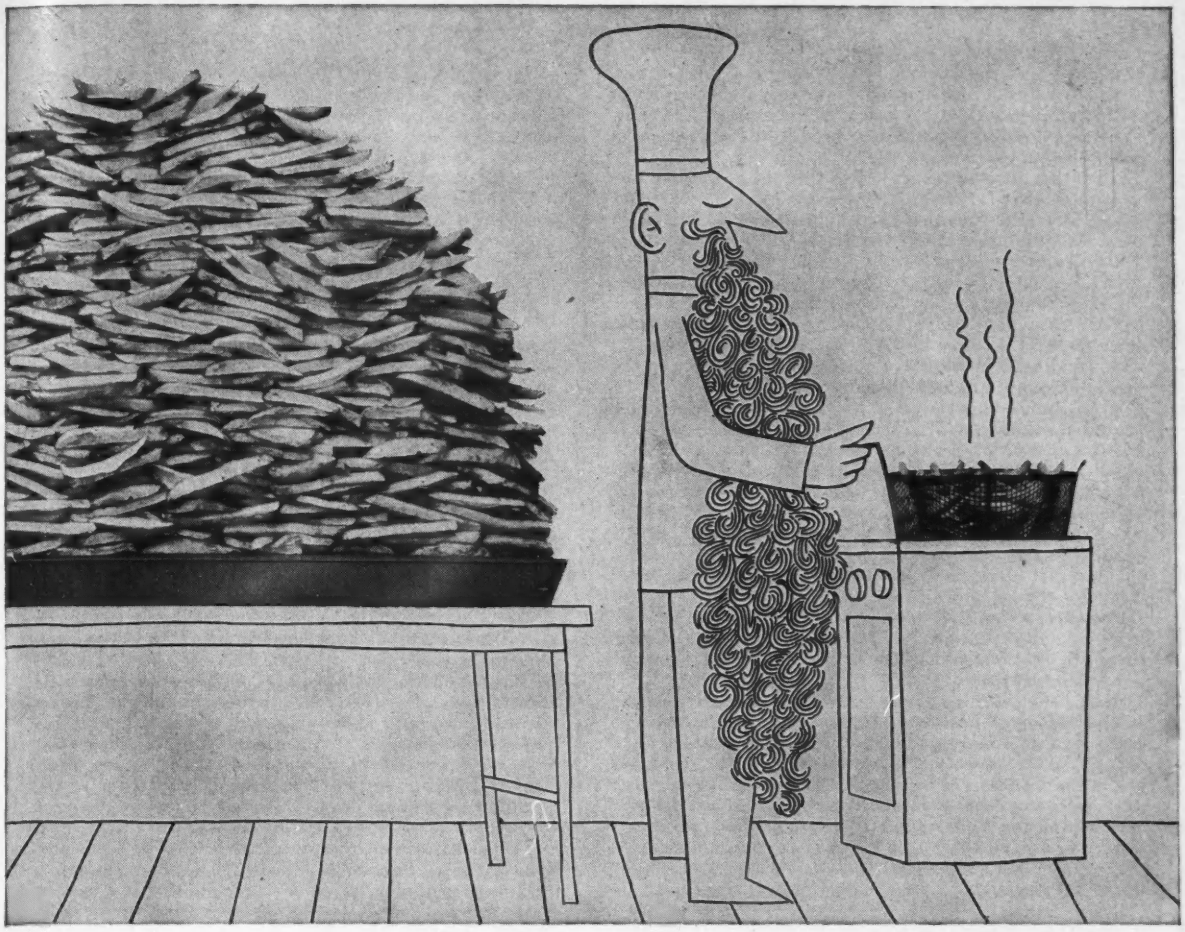
While the reviewer is not in a position to question the definitions from other fields, the state of those on diet would lead one to have doubt regarding the soundness of others.

Dental Health Education. By Frances A. Stoll, Ed.D. Philadelphia: Lea & Febiger, 1957. Cloth. Pp. 196. Price $4.50.

Dental Health Education by Frances A. Stoll consists of four parts, each presenting one aspect of a dental health education program. The author discusses the need for such a program and points out how much remains to be done in this area of public health, since less than 2 per cent of the population live the entire life span without some form of dental disease.

In Part I, a detailed account is given of the way in which dental health education must be coordinated with other health services if it is to be effective. It is gratifying to note that dental health education is not considered as a separate entity but has been included as an integral part of the total health services for the individual. The responsibilities and the extent of authority of health organizations at the national, state, and community levels are explained. Mrs. Stoll shows how a dental health education program could and should be included in the public health structure as it is done in some large cities such as New York City.

Dental disease, including malocclusion, congenital deformities, and infection of the gingivae and oral mucosa, is defined and discussed. Prevention and control are emphasized in relation to total health. The responsibilities of



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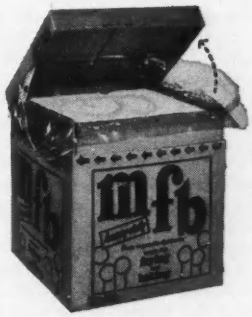

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the family and the community are delineated, and suggestions are made for utilizing family and community activities within a functional dental health program. Part I presents in essence an ideal public dental health program as part of public health services.

Part II is devoted to methods of dental health education in schools. Part III discusses the use of various techniques in dental health education, namely: audio-visual aids, such as motion pictures, radio, and television; and the use of dramatics, lectures, and group discussions. Part IV deals with adult dental health education and the opportunities for individual instruction in the dental office. Mrs. Stoll is of the opinion that the dentist and his staff should consider themselves as teachers in the fullest sense of the word. In an appendix the opportunities for patient education in the dental office are explicitly listed.

Mrs. Stoll's book is an excellent reference for public health educators, dentists, dental hygienists, and others is allied professions. Although dental health education is often neglected in public health programs, and dental disease admittedly affects approximately nine-tenths of our population, the introduction of Mrs. Stoll's somewhat Utopian scheme may not be feasible or practical at the moment in the opinion of this reviewer. One must consider the financial aspects of such a program and the personnel it would require. Most of the responsibility would fall on the teachers whose classrooms are now overcrowded and who have little time for added duties. Add to this the fact that there are not enough dentists in the U. S. to perform the necessary treatment.

This book deserves praise for its broad scope and the amount of detail included. It is succinctly written and easily read. It would appear that the effectiveness of present dental health education programs should be evaluated before the adoption of further extensions of these services as suggested by Mrs. Stoll. Until such data are available it may be well to devote presently available funds primarily to further basic research as the most promising means of preventing dental disease.—*Penelope S. Peckos, Chief, Nutrition Department, The Forsyth Dental Infirmary for Children, Boston.*

The Use of Tests in Schools of Nursing. Pamphlet No. 5, The Construction and Use of Teacher-Made Tests. By The Test Construction Unit, The National League for Nursing. New York: National League for Nursing, Inc., 1957. Paper. Pp. 102. Price $2.50.

Do you construct good tests? Do they ask what you want? Could they serve as a criteria for desired achievement in your class?

Teachers whose responsibility includes testing of their students about subject matter or course content will find this book a valuable aid for constructing their tests. Points discussed are: different kinds of paper-and-pencil tests which the teacher can use, different kinds of test items which can be included, and help in constructing a test.

Evaluation is part of every teacher's responsibility. Teachers themselves are well aware of their own personal appraisal of students. The student who always comes to class, the student who always responds when called on, or the student who is either well accepted or poorly accepted by the other students is subject to personal measurement by the teacher. Some subjective and personal means of evaluating the student may be misleading. A student having a pleasing personality and exhibiting interest doesn't always have complete understanding of the course. If for no other reason than giving the student a grade, an objective means of evaluation should be utilized. Personal appraisal of students is not always substantial evidence for the grade which the student will receive. This book is concerned with helping the teacher evaluate her students according to objective tests.

Different kinds of help in test construction are offered. Both essay and objective tests are discussed, suggesting the advantages and disadvantages of each. Disadvantages of the essay test can be the limited sample of facts or knowledge which can be included, the length of time consumed in scoring, and the unreliability of scoring. Teachers are probably justifiably influenced by such factors as vocabulary, spelling, and handwriting. For these reasons, major emphasis of the book is designed to help the teacher in objective test development.

Since objective tests can easily include more factual information, as well as comprehension and application of principles, more skill and time are required in their construction. To assist in building objective tests, ten guiding principles are offered. Each is well illustrated by specific examples. Although all of the examples in the book are focused on nursing education, they are presented as guides to better test construction and could be applied to any subject matter.

One-fourth of the book is devoted to objective test item construction. Examples of the test items given are: completion, true-false, muliple-choice, combination response, analogy, and matching. All of them are clearly defined and illustrated. Each kind of test item presented includes guiding principles for its most effective use. The multiple-choice item, for example, has thirteen rules for developing good questions for tests of this type.

Including all of the major points stressed during the course is important in the construction of a test. A technique for developing a "blueprint" which will include pertinent material is discussed. The blueprint defines the abilities that you want your students to achieve. Two of the seven desirable traits suggested in the blueprint are: "knows the meaning of important terms and concepts" and "applies principles and generalizations to new situations." Help is given in utilizing the different kinds of test items in constructing a test which will be representative of the blueprint.

The analysis and interpretation of test data includes some statistical discussion. A technique for item analysis of a test is presented. Without an understanding of statistical terms and methods, this portion of the book may prove difficult. However, the analysis of test data deals primarily with the concepts that the test services of the National League for Nursing are most frequently called upon to interpret. For those dealing with standardized tests, this portion of the book could be used as a guide in explanation of test data.

Because of many topic headings with subheadings which aid in easy reference, this book could easily become a well-used handbook for teachers who deal with test construction.

A brief bibliography is included. It seems somewhat regrettable that such a fine guide does not record more source material.—*Burness Wenberg, Resident in Nutrition, Department of Preventive Medicine, Ohio State University, Columbus.*

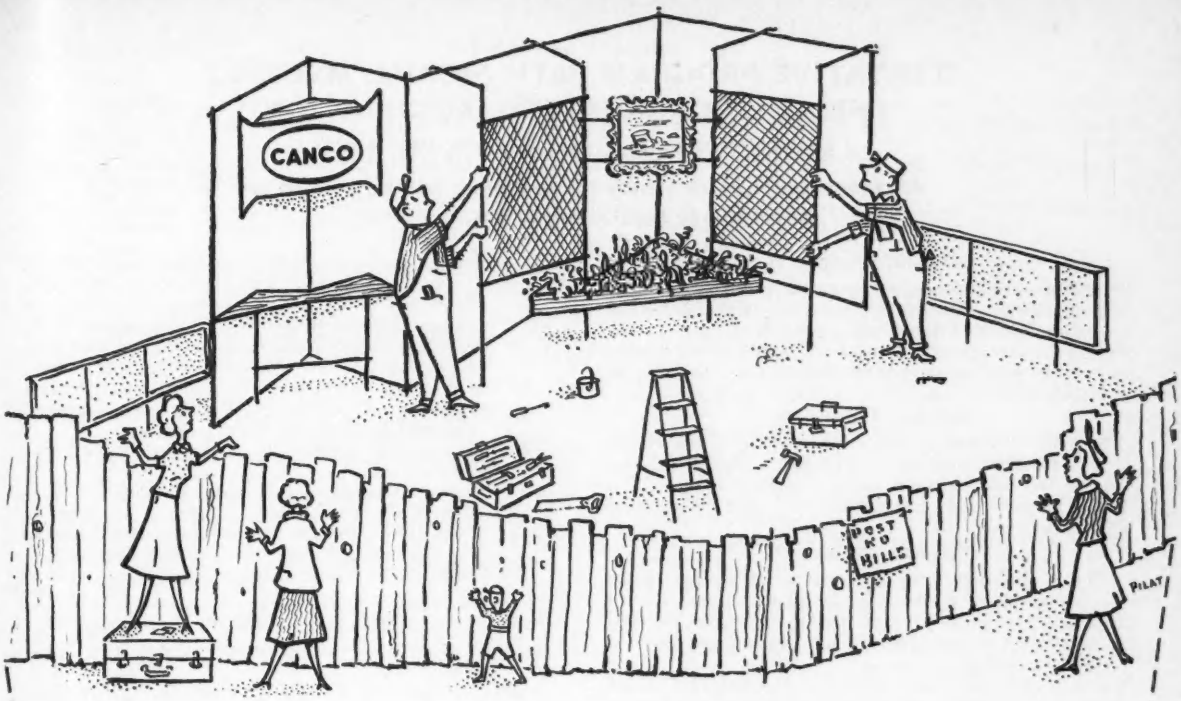
RECENT BOOKS RECEIVED

Basic Nutrition. By E. W. McHenry, Ph.D., F.R.S. (C.) Philadelphia: J. B. Lippincott Company, 1957. Cloth. Pp. 389. Price $5.

Amino Acid Malnutrition. Edited by William H. Cole. New Brunswick, New Jersey: Rutgers University Press, 1957. Paper. Pp. 98. Price $2.

The Freezing Preservation of Foods. Volume 1—Freezing of Fresh Foods. 3rd completely revised and augmented edition. By Donald K. Tressler, Ph.D., and Clifford F. Evers. Westport, Conn.: The Avi Publishing Company, Inc., 1957. Cloth. Pp. 1214. Price $18.

Ida Bailey Allen's Cook Book for Two. 2nd edition. Garden City, N. Y.: Garden City Books, Doubleday & Company, 1957. Cloth. Pp. 339. Price $2.95.



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TENTATIVE PROGRAM, 40TH ANNUAL MEETING THE AMERICAN DIETETIC ASSOCIATION

Miami, Florida—October 22–25, 1957

All meetings, unless otherwise specified, will be held at the Dinner Key Auditorium, October 22–24.

Saturday, October 19

9:30 a.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, The McAllister Hotel (limited to internship programs)

1:30 p.m.—MEETING OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS (limited to those in this area)

Sunday, October 20

1:30 p.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, The McAllister Hotel (limited to internship programs)

2:00 p.m.–8:00 p.m.—REGISTRATION, The McAllister Hotel

Monday, October 21

7:45 a.m.–8:45 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, The McAllister Hotel

9:00 a.m.—MEETING OF THE HOUSE OF DELEGATES (all members of the Association are encouraged to audit this meeting)

8:00 a.m.–8:00 p.m.—REGISTRATION, The McAllister Hotel

12:30 p.m.—LUNCHEON, The McAllister Hotel (members of the House of Delegates and Alternate Delegates only)

1:45 p.m.—MEETING OF THE HOUSE OF DELEGATES (all members of the Association are encouraged to audit this meeting)

7:30 p.m.—TROPICAL FIESTA, *Welcoming Buffet* (by ticket only)—for exhibitors and members, Miami Bayfront Auditorium

Tuesday, October 22

7:30 a.m.–8:00 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, The McAllister Hotel

8:00 a.m.–9:30 a.m.—MEETING OF THE HOUSE OF DELEGATES, The McAllister Hotel

8:30 a.m.–4:00 p.m.—REGISTRATION, Dinner Key Auditorium

8:30 a.m.–4:30 p.m.—EXHIBITS OPEN, Dinner Key Auditorium

10:30 a.m.—OPENING SESSION
Invocation—Frank L. Titus, Rector, Holy Cross Episcopal Church, Miami
Introduction of Executive Board
Keeping Pace with the Changing Times

11:45 a.m.—LUNCHEON FOR PRESENT AND INCOMING EXECUTIVE BOARDS OF STATE DIETETIC ASSOCIATIONS

2:00 p.m.—BUSINESS MEETING OF MEMBERS OF THE AMERICAN DIETETIC ASSOCIATION

3:30 p.m.—MEETING OF PRESENT AND INCOMING EXECUTIVE BOARDS OF STATE DIETETIC ASSOCIATIONS (informal discussion groups on pertinent subjects)

3:45 p.m.—VIEWPOINTS ON PERFORMANCE
Sound Bases for Professional Relationships—James M. Godard, LL.D., Litt.D., Executive Vice President, University of Miami, Coral Gables
What Does Top Management Expect?—George E. Cartmill, Jr., Director, Harper Hospital, Detroit

3:45 p.m.—FOOD TECHNOLOGY TODAY
New Food Products and Processes—Jane C. Ebbs, Special Feeding and Nutrition Advisor, Department of the Army, Office of the Quartermaster General, Washington, D. C.
Legal Protection of "Convenience Foods"–E. M. Nelson, Ph.D., Director, Division of Nutrition, Food and Drug Administration, Department of Health, Education, and Welfare, Washington, D. C.
The Role of Food in the Epidemiology of Salmonellosis—Norman B. McCullough, M.D., Chief, Laboratory of Clinical Investigation, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda

8:30 p.m.—LATEST FINDINGS IN NUTRITION, Miami Bayfront Auditorium
Revised Recommended Dietary Allowances–NRC—Robert E. Shank, M.D., Danforth Professor of Preventive Medicine, Department of Preventive Medicine and Public Health, Washington University School of Medicine, St. Louis

Wednesday, October 23

8:30 a.m.–4:00 p.m.—REGISTRATION, Dinner Key Auditorium

8:30 a.m.–4:30 p.m.—EXHIBITS, Dinner Key Auditorium

8:30 a.m.–9:30 a.m.—MEETING OF STATE EDUCATION CHAIRMEN, Martha N. Lewis, *and* Margaret L. Ross, Ph.D., *Chairmen*, Dinner Key Auditorium

9:30 a.m.—QUALITY FOOD SPEAKS FOR ITSELF
Up-to-Date Recipes—Pearl Janssen, Associate Professor of Home Economics, University of Illinois, Urbana
Cook for Quality . . . Eat for Health—Margaret L. Mitchell, Vice President–Food Production, Stouffer's Restaurants, Cleveland

9:30 a.m.—FATTY ACIDS AND ATHEROSCLEROSIS
Fatty Acids in Foods—Callie Mae Coons, Ph.D., Director, Human Nutrition Research Division, Institute of Home Economics, U. S. Department of Agriculture, Washington, D. C.
Linoleic Acid in the Infant's Diet—Arild E. Hansen, M.D., Chairman, Department of Pediatrics, The University of Texas—Medical Branch, Galveston
Latest Developments in Atherosclerosis—Theodore B. Van Itallie, M.D., Assistant Professor of Clinical Nutrition, Harvard School of Public Health, Boston

11:15 a.m.—FOOD SERVICE IN MENTAL HOSPITALS
The American Psychiatric Association's Central Inspection Board Reports—Charles K. Bush, M.D., Chief Inspector, Central Inspection Board, American Psychiatric Association, Washington, D. C.

11:15 a.m.—CONFERENCE
Can the Association Help You?—Bessie B. West, Continuing Education Services Director, The American Dietetic Association, Chicago, *Leader*

11:30 a.m.—DIET THERAPY
Nutritional Aspects of Water—Olaf Mickelsen, Ph.D., Chief, Nutrition Section, Laboratory of Nutrition and Endocrinology, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda
Dietary Sodium in the Etiology of Essential Hypertension in Humans—Lewis K. Dahl, M.D., Brookhaven National Laboratory, Upton, New York
New Sodium-Restricted Diet Booklets—Beth Heap,

Nutrition Consultant, Heart Disease Control Program, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.

11:30 a.m.—CONFERENCES AND DISCUSSION HOURS

As Those We Serve See Us—panel discussion

Hospital—Jean Crooks, Chief, Diet Therapy Section, Veterans Administration, Washington, D. C., *and* Ann E. Rockwood, Department of Dietetics, Hartford Hospital, Hartford

College—Clinton A. Wall, Walla Walla College, College Place, Washington

Commercial—Mildred C. Haugh, Director, Food Service, Howard Johnson Co., Inc., New York City

Audience participation

What Can We Do about Food Misinformation?—Jessie C. Obert, Ph.D., Head Public Health Nutritionist, Los Angeles County Health Department, Los Angeles

1:45 p.m.—HEALTH SERVICES FOR THE COMMUNITY

What's New in Maternal and Child Health Programs?—Hilla Sheriff, M.D., Director, Division of Maternal and Child Health, South Carolina Board of Health, Columbia

Public Health Programs of the Future—Wilson T. Sowder, M.D., State Health Officer, Florida Board of Health, Jacksonville

Developing a Public Health Program to Fit the Needs of a Community—Esther Seijo de Zayas, Ph.D., Director, Bureau of Nutrition and Dietetics, Department of Health, San Juan, Puerto Rico

1:45 p.m.—RATING YOURSELF

A Look at Your Department—Helen R. Cahill, Dietetic Division, Veterans Administration, Washington, D. C.

Quantity Food Production—Beatrice Donaldson, Ph.D., Associate Professor, Institution Management Laboratory, Department of Foods and Nutrition, University of Wisconsin, Madison

3:45 p.m.—INTERVIEWING THE PATIENT TODAY

Strengthening the Teaching of Patients—Edward Wellin, Ph.D., Coordinator and Study Director, Mental Retardation Project, Cambridge Department of Public Health, Cambridge

Instructing Patients in Groups—Edward C. Norman, M.D., School of Medicine, Tulane University, New Orleans

4:15 p.m.—CONFERENCES AND DISCUSSION HOURS

Better Management through Control of Labor Expenditures and Work Simplification—Marjorie M. McKinley, Ph.D., Assistant Professor, Department of Institution Management, Iowa State College, Ames, *and* Mary Lipscomb, Major, AMSC, Chief, Training Section, Food Service Division, Brooke Army Hospital, Fort Sam Houston, Texas, *Leaders*

The School Lunch Program—LeVelle Wood, Chairman, Institution Management Division, The Ohio State University, Columbus, *and* Helen E. Underwood, Caddo, Parish School Board, Shreveport, *Leaders*

8:30 p.m.—DESIGNS FOR NEW PERSPECTIVES, Miami Bayfront Auditorium

Blaze Fresh Trails in Thinking—Francis Cartier, Ph.D., Educational Specialist and Associate Professor of Communication, Air University, Maxwell Air Force Base, Alabama

A Key to Your Success—Warren Guthrie, Ph.D., Chairman, Department of Speech, Western Reserve University, Cleveland

Thursday, October 24

8:30 a.m.–4:00 p.m.—REGISTRATION, Dinner Key Auditorium

8:30 a.m.–4:30 p.m.—EXHIBITS, Dinner Key Auditorium

8:30 a.m.—MEETING OF STATE COMMUNITY NUTRITION CHAIRMEN—Marjorie M. Morrison, *Chairman*, Dinner Key Auditorium

8:30 a.m.—MEETING OF STATE DIET THERAPY CHAIRMEN—Elizabeth K. Caso, *Chairman*

8:30 a.m.—MEETING OF STATE FOOD ADMINISTRATION CHAIRMEN—Esther G. Woodruff, *Chairman*

8:30 a.m.—CONFERENCE

Dietary Instruction for the Diabetic Patient—Mildred Kaufman, Nutritionist, Diabetes Research and Training Unit, Public Health Service, Department of Health, Education, and Welfare, Boston

9:30 a.m.—CONFERENCE OF FACULTIES OF COLLEGE AND UNIVERSITY HOME ECONOMICS DEPARTMENTS AND APPROVED DIETETIC INTERNSHIPS, The McAllister Hotel

9:30 a.m.—BASIC CONTROLS, Dinner Key Auditorium

Newer Developments in Refrigeration—Walter O. Walker, Ph.D., Dean, Division of Research and Industry, University of Miami, Coral Gables

Key Factors in Sanitation—Keith A. Fitch, Executive Director, Orkin Institute of Industrial Sanitation, Atlanta

9:30 a.m.—DIABETES RESEARCH

Oral Hypoglycemic Agents in Treatment of Diabetes—Rachmiel Levine, M.D., Chairman, Department of Medicine, and Director, Department of Metabolic and Endocrine Research, Michael Reese Hospital, Chicago

Today's Concepts in Dietary Care of the Patient with Diabetes—Herbert Pollack, M.D., New York City

11:15 a.m.—CONFERENCE AND DISCUSSION HOURS

What Can We Do in Rehabilitation?—A. June Bricker, Director, Home Economics Bureau, Metropolitan Life Insurance Company, New York City, *Leader*

Dietary Instruction of In-Patients—Sybil D. Kaplan, Dietary Department, Beth Israel Hospital, Boston, *Leader*

Better Management through Control of Labor Expenditures and Work Simplification—Marjorie McKinley, Ph.D., Assistant Professor, Department of Institution Management, Iowa State College, Ames, *and* Mary Lipscomb, Major, AMSC, Chief, Training Section, Food Service Division, Brooke Army Hospital, Fort Sam Houston, Texas, *Leaders*

11:30 a.m.—THE HOSPITAL DEVELOPS A DISASTER FEEDING PLAN—John N. Hatfield II, Secretary, Committee on Disaster Planning, Washington Service Bureau, American Hospital Association, Washington, D. C.

11:30 a.m.—DIETETICS AND THE NURSING CURRICULUM

1:45 p.m.—MANAGEMENT ANALYSIS

A Management Training Program—Charles B. Womer, Assistant Director, University Hospitals of Cleveland, Cleveland

Management Control through Personnel Policies—James S. Metcalfe, Director of Public Relations and Advertising, Crosley Division, AVCO Manufacturing Corporation, Cincinnati

2:45 p.m.—YOUR LISTENING LIFE

You Hear, But Do You Listen?—Donald E. Bird, Ph.D., Teacher of Communication Skills and Speech, Stephens College, Columbia, Missouri

3:00 p.m.—CONFERENCES AND DISCUSSION HOURS

General Concepts in the Basic Nursing Program in Our Area—Jessie Greene, Nutritionist, Boston University School of Nursing, Boston, *Leader*

Our Role in Disaster Feeding and Civil Defense—Dorothy L. Bovee, Food and Nutrition Consultant, American National Red Cross, National Headquarters, Washington, D. C., *Leader*

4:15 p.m.—CONFERENCE
A Preventive Program in Obesity—Charlotte Young, Ph.D., Professor of Medical Nutrition, Cornell University, Ithaca, New York, *Leader*

7:30 p.m.—ANNUAL BANQUET, Fontainebleau Hotel, Miami Beach
Invocation—Lewis N. Head, D.D., Pastor, The First Methodist Church, Coral Gables
Presentation of the Lydia J. Roberts Essay Award for 1957
Presentation of Mead Johnson Awards for 1957
Presentation of the Mary Swartz Rose Fellowship for 1957
Presentation of the Marjorie Hulsizer Copher Award for 1957

Friday, October 25

(All Friday meetings will be in Miami hotels and the Miami Bayfront Auditorium)

8:30 a.m.—CONFERENCE AND DISCUSSION HOURS
Clinic in Community Nutrition Problems—Sophia M. Podgorski, Senior Nutrition Consultant, Bureau of Nutrition, Pennsylvania Department of Health, Wilkes-Barre, *Leader*
New Ideas in Food Administration—Beatrice Donaldson, Ph.D., Head, Institution Management Laboratory, Department of Foods and Nutrition, University of Wisconsin, Madison, *Leader*
Clinic in Education—Martha N. Lewis, Associate Professor, Nutrition Division, Department of Preventive Medicine, The Ohio State University, Columbus; Virginia Kopec, Dietary Department, Henry Ford Hospital, Detroit; *and* Bessie B. West, Continuing Education Services Director, The American Dietetic Association, Chicago, *Leaders*
Administration in the Department of Dietetics in the Mental Hospital
Courses for Food Service Supervisors—Jane Hartman, Food Service Specialist, Connecticut Hospital Association Project for Improved Personnel and Dietary Administration, New Haven, *Leader*
Dietary Consultants to Small Hospitals and Institutions—Alice M. Smith, Chief, Nutrition Section, Michigan Department of Health, Lansing, *Leader*
The School Lunch Program—Mary Griffith, Board of Education, Newark

8:30 a.m.—SEMINAR
Teaching of Students in Hospital Administration (limited to those active in this area)—Vivian Laird, Director of Dietetics, University of Chicago Clinics, Chicago

9:30 a.m.–2:00 p.m.—REGISTRATION

9:45 a.m.—LATEST DEVELOPMENTS IN FOOD AND THERAPY
Tube Feeding with Natural Foods—James Barron, M.D., Division of General Surgery, Henry Ford Hospital, Detroit
Pitfalls in the Promotion of Food—Philip L. White, Sc.D., Secretary, Council on Foods and Nutrition, American Medical Association, Chicago

9:45 a.m.—NUTRITION RESEARCH
USDA Food Consumption Survey—Faith Clark, Ph.D., Director, Household Economics Research Division, Institute of Home Economics, U. S. Department of Agriculture, Washington, D. C.

9:45 a.m.—EQUIPMENT AND LAYOUT TODAY AND IN THE FUTURE
Automation in Food Service—Arthur C. Avery, Technical Director, Commissary Research Division, Navy Supply Depot, Bayonne, New Jersey
Determine Your Needs from the Portions You Serve—Clarice D. Gullickson, Professor, Hotel and Institution Administration, Pennsylvania State University, University Park
Work Measurement and the Credit Squeeze—J. P. Lesperance, Ph.D., Consultant to Management, Director, Time and Motion Study Institute, University of Miami, Coral Gables

12:00 Noon—HISTORY OF NUTRITION AND DIETETICS LUNCHEON, Helen S. Mitchell, Ph.D., *Chairman*

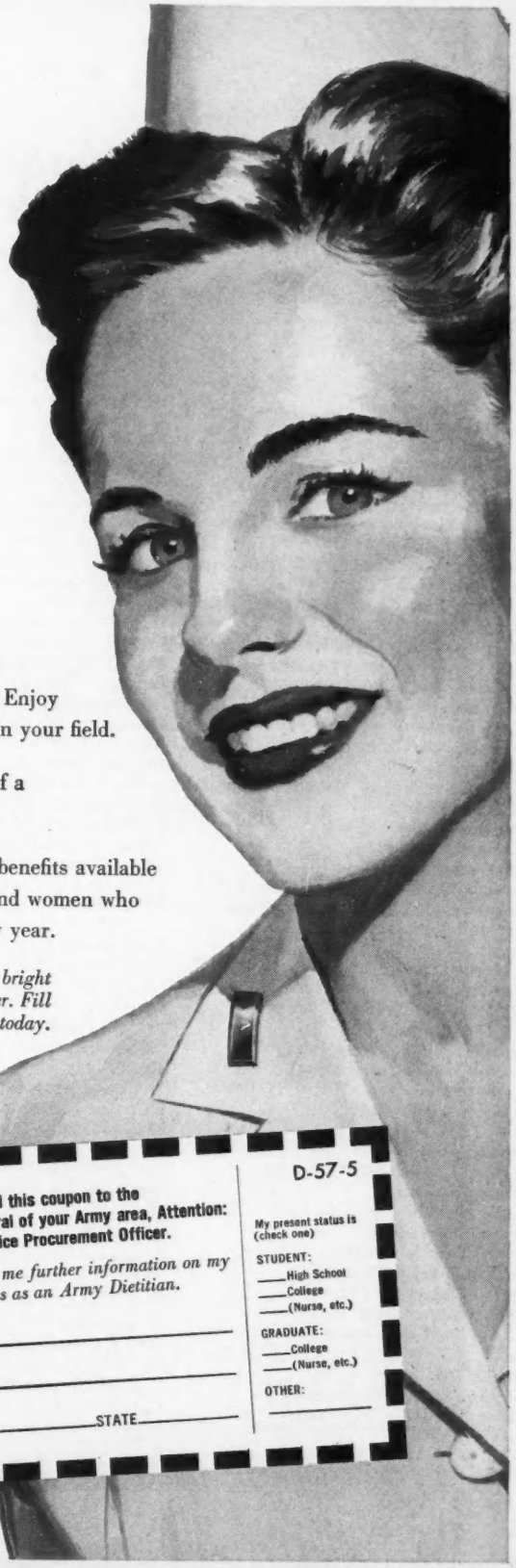
2:00 p.m.—COST MANAGEMENT
Precosting Food Makes Cents—Guy Weaver, Manager, Harris-Kerr-Forster & Company, Chicago
How to Precost Labor—Grace L. Stumpf, Director, Department of Dietetics, University Hospital, Ohio State University, Columbus

2:00 p.m.—OBESITY AND WEIGHT CONTROL
The Psychology of Weight Reduction—Walter W. Hamburger, M.D., Associate Professor of Psychiatry, University of Rochester School of Medicine and Dentistry; and Strong Memorial Hospital Rochester, New York
Energy Balance and Weight Loss in the Obese Patient—Robert E. Olson, M.D., Ph.D., Professor and Head, Department of Biochemistry and Nutrition, Graduate School of Public Health, University of Pittsburgh, Pittsburgh
Weight Control from the Preventive Viewpoint—W. H. Sebrell, Jr., M.D., Chairman, Williams-Waterman Fund, Research Corp., New York
Discussant: Philip L. White, Sc.D., Secretary, Council on Foods and Nutrition, American Medical Association, Chicago

Motels Located Between Headquarters Hotels and Dinner Key Auditorium, Miami

Name	Description	Rates
Brickell Motel & Apartments 1177 Brickell Ave.		$7 per day for two persons
Key Motel 2675 South Bayshore Drive (limited vacancies)	opposite Dinner Key Auditorium; AAA; air conditioned; swimming pool	$9 and up per day for two persons
Towne Motel 1200 Brickell Avenue	air conditioned	$7 per day for two persons
Arrowhead Motel 1050 Brickell Avenue	air conditioned; swimming pool	$7 and $8 per day for two persons
Colonial Terrace Motel—Apartments Brickell Avenue	air conditioned; swimming pool	$7 per day for two persons

step into a bright tomorrow as an Army Dietitian



Bright Professional Life. Work in modern, well-equipped Army hospitals with a top group of dedicated men and women. Enjoy specialized training in the latest techniques and developments in your field.

Bright Officer's Life. Serve with the rank, pay and prestige of a commissioned officer in the United States Army.

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Get the details on your bright tomorrow as an Army officer. Fill out this coupon and mail it today.

D-57-5

For full details mail this coupon to the Commanding General of your Army area, Attention: Army Medical Service Procurement Officer.

Please send me further information on my opportunities as an Army Dietitian.

NAME_____

ADDRESS_____

CITY_____ STATE_____

My present status is (check one)

STUDENT:
____High School
____College
____(Nurse, etc.)

GRADUATE:
____College
____(Nurse, etc.)

OTHER: _____

serving Humanity • Country • Self **U. S. ARMY MEDICAL SPECIALIST CORPS**

COMMERCIAL EXHIBITORS—40TH ANNUAL MEETING THE AMERICAN DIETETIC ASSOCIATION

Dinner Key Auditorium, Miami—OCTOBER 22–24

Aatell & Jones, Inc.
Abbott Laboratories
Allen Foods, Inc.
A. S. Aloe Company
Aluminum Cooking Utensil Company, Inc.
Amcoin Corporation
American Can Company
American Dry Milk Institute, Inc.
American Gas Association
American Institute of Baking
American Machine & Foundry Company
Armour & Company
Associated Blue Lake Green Bean Canners, Inc.
Automatic Food Shaping Company, Inc.
Avril Incorporated
G. S. Blakeslee & Company
Bolta Products Div.—General Tire & Rubber Company
Boonton Molding Company
Borden Company
Bryant Electric Company
Buffalo China, Inc.
Calgon Co.—Div. of Hagan Chemicals & Controls, Inc.
Campbell Soup Company
Carnation Company
Cereal Institute, Inc.
Chicago Dietetic Supply House, Inc.
Chicago Molded Products Corporation
Cleveland Range Company
Cling Peach Advisory Board
Cockle Ventilator Company
Coffee Brewing Institute, Inc.
Corn Products Refining Company
Cory Corporation
Cramore Fruit Products, Inc.
Cream of Wheat Corporation
Crescent Metal Products, Inc.
Custom Food Products, Inc.
DCA Food Industries, Inc.—Institutional Products Division
Diamond Crystal Salt Company
Dietene Company
Diets Unlimited, Inc.
Diversey Corporation
Edward Don & Company
Dri-Heat Food System, Inc.
Du Bois Company, Inc.
Duke Manufacturing Company
E. I. du Pont de Nemours & Company, Inc.
Economics Laboratory, Inc.
Encyclopaedia Britannica, Inc.
Evaporated Milk Association
Fearn Foods, Inc.
Fish Equipment Company
Florida Citrus Commission
Food Machinery & Chemical Corp.
Foster Refrigerator Corporation
E. Fougera & Company, Inc.
W. H. Frick, Inc.
Frito Company
Frozen Food Forum, Inc.
General Foods Corporation
Gerber Products Company
Glenco Refrigeration Corporation
Gorton's of Gloucester
Green Giant Company
Groen Manufacturing Company
Hammons Company, Inc.
H. J. Heinz Company
Hilker & Bletsch Company
Hobart Manufacturing Company
Hotpoint Company
Institutional Feeding & Housing Institutions Magazine
International Molded Plastics, Inc.
Jackson China Company
Jarvis & Jarvis, Inc.
Mead Johnson & Company
Kellogg Company
Kewanee Industrial Washer Corp.
Keyes Fibre Company
Klenzade Products, Inc.
Koch Refrigerators, Inc.
Kraft Foods Company
Kraft Foods Co.—Citrus Division
Legion Utensils Company, Inc.
Eli Lilly & Company
Lily-Tulip Cup Corporation
J. B. Lippincott Company
Lo-Sodium Dairy Products Corp.
Macmillan Company
Mansfield Aircraft Products Company
Market Forge Company
Mayer China Company
McCall Refrigerator Corporation
McGraw-Edison Company
Mealpack Corporation
Meals-On-Wheels, Crimsco, Inc.
Metropolitan Wire Goods Corporation
Middleby-Marshall Oven Company
Louis Milani Foods, Inc.
Multi-Counter Manufacturing Company
National Biscuit Company
National Dairy Council
National Live Stock and Meat Board
National Turkey Federation
Nestle Company, Inc.
Samuel Olson Manufacturing Co., Inc.
Onondaga Pottery Company
John Oster Manufacturing Company
Paper Cup & Container Institute, Inc.
Pepperidge Farm, Inc.
Petersen Oven Company
Pet Milk Company
Pfaelzer Brothers, Inc.
Pillsbury Mills, Inc.
Precision Metal Products
Processed Apples Institute, Inc.
Procter & Gamble
Quaker Oats Company
Qualheim, Inc.
Quality Bakers of America Cooperative, Inc.
Ralston Purina Company
Rath Packing Company
Rich Products Corporation
Ross Laboratories
W. B. Saunders Company
Savory Equipment, Inc.
Ad. Seidel & Son, Inc.
John Sexton & Company
Shampaine Electric Company
Smith, Swanson & Whitehouse
Southern Cross Manufacturing Corp.
Southern Equipment Company
E. R. Squibb & Sons
Standard Brands, Inc.
Star Metal Manufacturing Company, Inc.
Steele-Harrison Manufacturing Company
Sunkist Growers, Inc.
Swartzbaugh Manufacturing Company
Swift & Company
T & S Brass & Bronze Works, Inc.
Toledo Scale Company
Unit-Packet Corporation
United Fresh Fruit & Vegetable Association
Universal Industries
Vacu-Dry Company
Vacuum Can Company
Webster Van Winkle Corporation
Victory Metal Manufacturing Corp.
Waring Products Corporation
Waste King Corporation
Watertown Manufacturing Company
Wesson Oil & Snowdrift Sales Company
Wilson & Company, Inc.
Wisconsin State Department of Agriculture
Wyandotte Chemicals Corporation

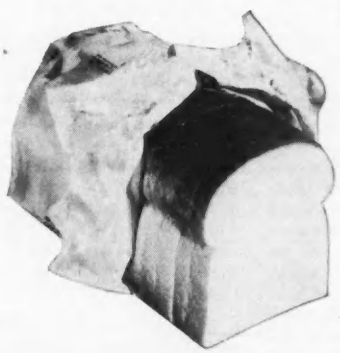
In almost Every Diet...

in health and disease

Enriched Bread

remains basic

Regardless of the dietary adjustment indicated, Enriched Bread helps supply needed nutrients...protein, energy, vitamins, minerals... and is always compatible.



AMERICAN BAKERS ASSOCIATION

20 North Wacker Drive • Chicago 6, Illinois

40th Annual Meeting—October 22–25, 1957

Florida Keys Unlock Doors to Sand and Science

SIGNIFICANT FALL DATES

MONDAY EVENING, October 21, 7:30 p.m., Bayfront Auditorium

Tropical Fiesta for the exhibitors and members. A distinctly Miami-flavored buffet with effervescence contributed by a calypso band. This informal evening will give exhibitors and members the opportunity to renew old friendships and make new acquaintances.

The History of the A.D.A. Breakfast will be omitted this year. An interesting report concerning recent developments in the preparation of the Association's history will be given at the business meeting at 2 o'clock on Tuesday afternoon.

TUESDAY, October 22, 11:45 a.m., Dinner Key Auditorium

Luncheon for present and incoming executive boards of state dietetic associations.

THURSDAY, October 24, 7:30 p.m., Hotel Fontainebleau

The *Annual Banquet*, the most memorable occasion of the year, for members. Exhibitors who wish to attend will be welcomed. During the evening, presentations will be made of the Marjorie Hulsizer Copher Award, the Mary Swartz Rose Fellowship for 1957, the Mead Johnson Awards for 1957, and the Lydia J. Roberts Essay Award for 1957.

FRIDAY, October 25, 12 noon

History of Nutrition and Dietetics Luncheon. Helen S. Mitchell, Ph.D., the new chairman, will preside.

BE A "STUDENT FOR A DAY"! IT'S INFORMAL, FUN, WORTH WHILE!

EDUCATIONAL TRIPS

Here is an academic program that's thoroughly enjoyable! It includes an itinerary that might rival the most unusual program at the University of Miami. A mass feeding commissary, a swank hotel, a 1000-bed hospital, and an experiment station will be your texts. And your classroom—well, it will consist of the open road, a bus of happy people, and some unusual stop-offs.

How do you sign up? An advance registration form will be mailed to you in September. You'll have a choice of four trips, running on Monday, October 21. Morning and afternoon excursions will be taken on chartered buses. The cost of each day tour is one dollar ($1.00) per person.

A brief run-down on the trips to be offered may help you in planning. Monday is the day chosen for the Howard Johnson Restaurant trip. Scheduled to get underway at 8:00 a.m., this excursion will take you to a central commissary and plant where food is precooked and frozen in portions to be delivered to the local Howard Johnson stores. This is a large foods operation—the commissary serves the whole southeastern United States. The Howard Johnson trip winds up at 12 o'clock noon.

Also on Monday morning, you may take an 8:30 a.m. chartered bus to the University of Miami Experiment Station at Perrine. The Experiment Station houses the University of Miami School of Food Technology, which is concerned with food research, packaging, and processing of tropical and locally grown food. This trip promises to be both fascinating and unusual. You will return to the McAllister Hotel at 12:30 p.m.

Monday afternoon offers a combined trip to Jackson Memorial Hospital and the Fontainebleau Hotel. At 1:30 p.m., you will get under way and proceed by bus to the hospital. A county-operated, 1000-bed general hospital, Jackson Memorial features centralized food service. The hospital facilities are coordinated with the University of Miami Medical School. After you have toured this plant, you will be whisked to the Fontainebleau Hotel on Miami Beach. The Fontainebleau is one of the newest and largest hotels on the Beach. Your tour of its premises will include inspection of its numerous kitchens and varied dining rooms. You will return to the McAllister at 4:30 p.m.

An additional afternoon tour to the University of Miami Experiment Station will also be offered on Monday beginning at 1:00 p.m. This tour will be completed by 4:00 p.m., leaving you time to relax and prepare for evening activities. A special tour to the station may also be offered on Saturday, October 26, if demand warrants. If staged, the trip will start at 8:30 a.m. and end in front of the McAllister at 12:30 p.m.

MEXICO AND YUCATAN CALLING!

Mexico City, Cuernavaca, Taxco, Acapulco, Queretaro, San Miguel de Allende, Guanajuato, Merida—exciting names aren't they? And Oaxaca: that's one that fairly begs to become a destination. Those who take to Mexico for pleasure will find Oaxaca, as well as all the cities mentioned here, perfectly equipped by nature, culture, population, and tourist accommodation to turn you into the most happy tourist! Roads and airways lead naturally to Mexico from Floridaland. No passport is necessary, but a tourist card will need to be purchased on entry (about $3), and verification of smallpox vaccination obtained and carefully filed away to be shown on your return. Your tourist card will be good for 180 days of south-of-the-border living.

Incidentally, in case you're planning a vacation to the Caribbean, a smallpox vaccination verification and proof of U. S. citizenship should travel with you to use when you re-enter this country. And in case you have not yet planned a Caribbean tour of duty, why not consider the JOURNAL pages describing these wonderful tours in the June and July issues? Notes on local sightseeing excursions around Miami are included in the August issue of the JOURNAL.

DINNER KEY'S TRIPLE THREAT . . . FOODS, EQUIPMENT, IDEAS!

Next month, Miami's Dinner Key Auditorium will make an exciting attempt to capture the roving eye with over 150 exhibits presenting foods, equipment, and ideas. Few will be able to resist this triple invitation to interest. As things look now, the exhibiting area promises to be colorful and infinitely worth while.

Advance notice from many exhibitors sheds light on what we can expect to see and learn:

The *American Can Company* will feature the new booklet, *Purchase and Use of Canned Foods*. A guide for institution buyers and meal planners, the booklet gives in chart form the number of servings per can according to size of serving and size of can. Tables showing cost of each serving are also included . . . and that certainly is a good idea!

A new idea for dream toppings, or rather, an improvement on an old formula, will be demonstrated at *Rich Products Corporation* booth. Rich's new Diamond Process Base is a very versatile product. From it, a variety of cream-type toppings for desserts as well as many different icings, can be made. Technical information and recipes utilizing Rich products will be available at the booth. . .

And here's an established idea, recast and looking more vital than ever! *The National Dairy Council* booth will show an exhibit that proves "Whatever Your Age—You Can Look and Feel Better By Eating Better." Health education materials concerned with weight control, infant feeding, and teenage and geriatric nutrition problems will be available to dietitians registering at the booth.

New developments in the produce industry, developments which affect nutrition and food service, will be featured at the *United Fresh Fruit and Vegetable Association* booth. The new table grape—the Perlettee, by name—will be served to visitors; and details will be available to inquirers concerned with United's new 16 mm. produce industry film which will be planned for showing before dietetic groups. United will also display the latest literature on fresh fruits and vegetables.

A variety of time-honored and newly tested products will be demonstrated and served at the *Nestlé Company* booth. Nestlé Decaf and also iced Nestea are singled out as products which will be specially pointed up in the illustrious family which includes: Nestlé Ever-

IMPORTANT . . . MAIL YOUR APPLICATION PROMPTLY

Application for Housing Accommodations

THE AMERICAN DIETETIC ASSOCIATION

Miami, Florida • October 22–25, 1957

For your convenience in making hotel reservations for the coming meeting of THE AMERICAN DIETETIC ASSOCIATION October 22–25, 1957 in Miami, hotels and their rates are listed below. Use the form at the bottom of this page, indicating your first, second and third choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All reservations must be cleared through the Housing Bureau. ALL REQUESTS FOR RESERVATIONS MUST GIVE DEFINITE DATE AND HOUR OF ARRIVAL AS WELL AS DEFINITE DATE AND APPROXIMATE HOUR OF DEPARTURE, ALSO NAMES AND ADDRESSES OF ALL PERSONS WHO WILL OCCUPY RESERVATIONS REQUESTED *MUST* BE INCLUDED.

Hotel	Single	Double	Twin	Suites
ALCAZAR	$5.00	$7.00	$8.00	$14.00
BISCAYNE PLAZA	5.00–6.00		7.00–8.00	
BISCAYNE TERRACE	8.00		10.00–14.00	
THE ROBERT CLAY	5.00–6.00	5.00–7.00		
COLUMBUS*	6.00–8.00		8.00–17.00	30.00
DALLAS PARK			8.00	12.00–15.00
EVERGLADES	4.00–6.00		6.00–9.00	14.00–15.00
McALLISTER*	6.00–8.00	9.00–12.00	11.00–15.00	24.00–40.00
MIAMI COLONIAL	6.00	7.00	8.00–12.00	
PATRICIA	7.00		7.00	
THE TOWERS	6.00		7.00–8.00	12.00

(*) Headquarters hotels

In the event that the hotel room rate structure is changed prior to the above convention these rates will be changed accordingly.

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO: September 20, 1957

American Dietetic Assn. Housing Bureau
320 N.E. Fifth St.
Miami 32, Fla.

Please reserve the following accommodations for: THE AMERICAN DIETETIC ASSOCIATION Convention in Miami, Florida, October 22–25, 1957

Single Room _____ Double Bedded Room _____ Twin Bedded Room _____
Other Type of Room _____
Rate: From $_____ to $_____

First Choice Hotel _____
Second Choice Hotel _____
Third Choice Hotel _____

Arriving at Hotel (date) _____ hour _____ A. M. _____ P. M. Leaving (date) _____ hour _____ A. M. _____ P. M.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of *both* persons for *each* double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

_____
_____
_____
_____

(Individual Requesting Reservations)
Name _____

Address _____

City and State _____

If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere provided all hotel rooms available have not already been assigned.

Annual Meeting . . .

Ready Cocoa, Nestlé Chocolate Fudge and Chocolate Syrup, Nescafe Instant Coffee, Maggi Seasoning, and Maggi Granulated Bouillon and Granulated Chicken Bouillon.

Fruit-flavored baby meats, an innovation of *Swift and Company*, will be displayed and will be available for tasting at Swift's booth. These new products will insure an adequate protein intake for infants who resist the flavors of the usual protein foods.

The *National Biscuit Company* will offer products which can help save time, reduce labor costs, and control food costs. National Biscuit's booth will show Individual Service Varieties—a line of portion-controlled wafers and crackers, including the famous Ritz Envelopes, Premium Saltine Cracker Packets, and Dandy Oyster Cracker Envelopes.

A variety of attractions will await the visitor to the *Webster Van Winkle Corporation* booth. A new vegetable drying process will be featured along with the corporation's Sanalac, a non-fat milk product, and continental-style creamed coca—Brown Swiss. The piping-hot cocoa will be available to tasters. Visitors will enjoy Sanalac, iced-cold. Several fruit juices and milk puddings also will be displayed.

Educational publications illustrating the use of Pet Evaporated Milk will be shown at the *Pet Milk Company* booth where taste samples of Instant Pet Nonfat Dry Milk will also be featured. Visitors will be encouraged to watch the latest methods used in cooking with Pet products. Mary Lee Taylor cookbooks will be on display.

Lo-Sodium Dairy Products Corporation will display their top quality natural fresh milk from which approximately 90 per cent of the sodium has been removed. The corporation states that the product retains its original flavor and is indistinguishable in appearance from the original milk.

Pillsbury Mills, Inc. will bring plain and fancy hot breads to our members. Varieties to be shown will include simple dinner rolls as well as more elaborate braided and knotted types, plus plain, bran, and corn muffins. Formulas, portion costs, yield data, and instructions for making and shaping hot breads of all kinds will be available at the booth. And, technicians will be on hand to answer specific questions on baking problems.

The *Cereal Institute, Inc.*, will feature current nutrition educational materials. All visitors are cordially invited to stop, examine, and discuss these materials.

Armour and Company anticipates meeting old friends and asks one and all to stop at the booth to say "hello" and see the new colored 5 by 8 in. Recipe Card Service.

The *American Dry Milk Institute* also anticipates many reunions at Dinner Key. Representatives cordially invite old and new friends to examine and discuss with them materials on the use and care of non-fat dry milk in institution food preparation.

If foods are well represented and presented at the Dinner Key Exhibit, then by the same token, equipment must be too! The booths mentioned in the following paragraphs make up a sampling of what the visitor may expect to see.

A number of new models (containers, china, traycarts) will be introduced by the *Mealpack Corporation*. Equipment will include: a new stainless steel container with vacuum sealing gasket omitted in the lower half; plain and compartmented dishes for use with Mealpack containers; a new Multi-Meal Container with special serving trays; and, the "Mighty 28" Tray Cart with a capacity of 28 trays.

"Custom-bilt by Southern" food service equipment will be on display in the *Southern Equipment Company* booth. It will be comprised of a hospital bulk food conveyor, an all stainless steel die-stamped sink, a bakers' work table with portable bins, Seco urns, and Seco-Ware food storage pans.

Metal craftsmen of the *Market Forge Company* have selected their product, the Mark Fore Cooker (the only streamlined, automatic compartment-type steam cooker on the market) for display. Another featured item will be the all stainless steel unit (the combination unit) which requires only one water drain, and gas or electric connection and which combines a two-compartment steam cooker and a 40-gal. kettle.

The *Dispensator Division of W. H. Frick, Inc.* will show mobile carrier-dispensers to mechanize food service for more economical and efficient operation. Units for handling clean and soiled dishes, glasses, and cups, silverware and trays will be seen. Mobile work tables will make up the rest of this interesting presentation.

More noteworthy equipment will be seen at the *Groen Manufacturing Company* booth. In addition to representative units of the company's complete line of solid stainless steel, steam-jacketed, institutional-type kettles and coffee urns, star items will include: the full-jacketed, shallow-type kettle complete with new Groen Power-Aide cover; the portable stainless steel kettle which is electrically heated and steam jacketed; and, the brand new direct steam operated table top tilting kettle that requires little mounting space.

The *Food Machinery and Chemical Corporation* plans to show the FMC Utensil Washers as well as the FMC Jet Disposers, available in horsepowers from ½ to 2. In addition, the new Automatic FMC TeaMaker and the Meterflo Dispensers will be exhibited.

The *T & S Brass & Bronze Works, Inc.* plans to base its display on several of the company's new faucets. The new T & S self-closing gooseneck faucet for general clean-up sinks in laboratories and institutions provides fingertip control with a ball-bearing-type handle for easy, variable water flow. Another model (No. B-2500) features a new press-down nozzle which cleanses bottles and glasses in seconds. This unit water-scours any size or shaped bottles quickly and thoroughly by means of nine powerful jet washing streams which spray out in all directions. A timed water-flow-spray faucet for school and public wash sinks and a new specially designed self-closing pantry faucet complete the exhibit.

More new ideas and more new lines turn up with *Syracuse China Corporation*. Special attention will be given to the Trend Line, which has had wide acceptance in the hospital field and in other areas where space-saving and cost-cutting from the stand point of china services are important. Designed and produced by Syracuse China, the Trend Line can be viewed in two patterns—the Normandy and the Berkeley.

A friendly invitation is extended to visitors by the *Eli Lilly Company* to pause at the Lilly booth. Representatives will welcome questions about Lilly products and recent therapeutic developments.

The *Mayer China Company*, makers of the only exclusively vitrified hotel china, will have on display modern and distinctive china patterns in colors to suit any decor.

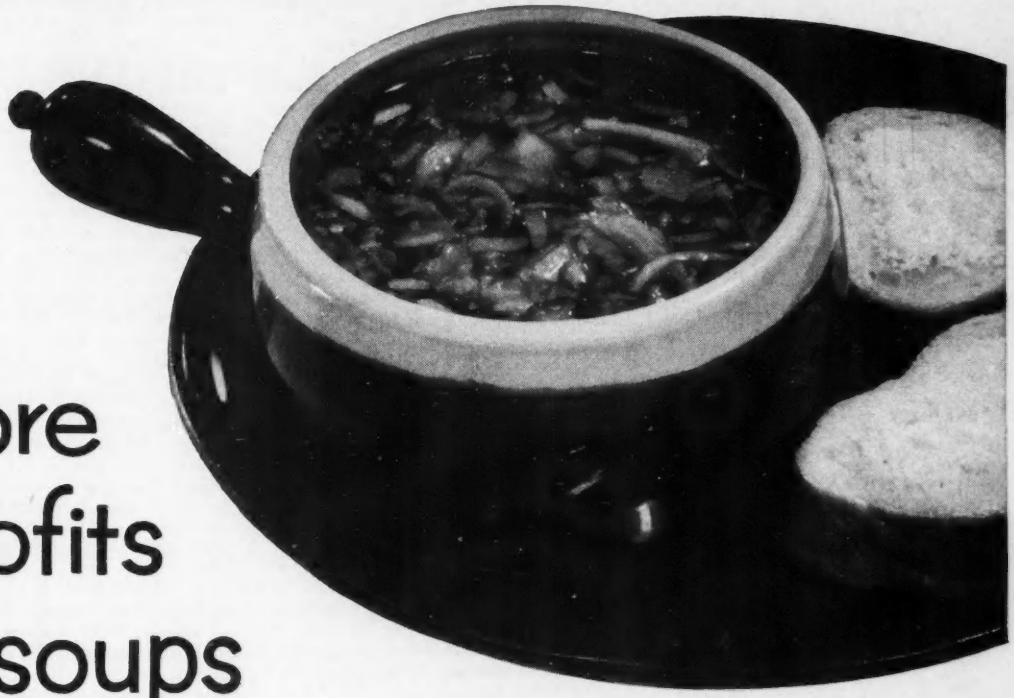
More equipment news comes from *The Aluminum Cooking Utensil Co., Inc.*, which will invite visitors to see a complete line of Wear-Ever aluminum range and oven utensils in addition to a steam-jacketed, gas-fired kettle and professional cutlery. Also on view will be a buffet service, pitchers and servers, and all food preparation and service equipment necessary for the efficient management of the quantity feeding kitchen.

Mansfield Aircraft Products Company, manufacturer of airline galleys and food handling equipment, will show visitors the MAPCO Mobile Meal Conveyor which is equipped with both hot and cold sections for distance service.

The *American Gas Association* will offer special literature on the care, maintenance, and operation of commercial gas cooking equipment. Representatives will be on hand to discuss commercial cooking problems.

The *Cockle Ventilator Company*, owner of the Pledgaire trade mark, plans to show the latest and most advanced system for ventilating cooking equipment of all kinds. New equipment features will be explained to all visitors by specialists.

At the *W. B. Saunders Company* booth, books on nutrition and related fields will be presented for examination by interested visitors.



More profits in soups with portion-control

Kraft Soup Bases

Kraft Soup Bases give you these four big advantages:

Economical—One-step preparation—time-saving, no waste. No expensive labor preparing soup stock.

High Quality—Uniform high quality assured by rigid controls through every step of production.

Profitable—Exact portion control eliminates guesswork on costs—you know your profits to the penny!

Versatile—Make superb soups. Bring out flavor of foods—effective as an enricher in soup stocks.

4 POPULAR VARIETIES

Chicken Base—Made from freshly roasted chicken and other choice ingredients. Makes delicious soup, also adds flavor to chicken dishes. In 1-lb. jars.

CS Base with Chicken Fat—Made with real chicken fat. Use it for soup, for enriching your own soup stocks. In 1-lb. jars.

Soup Base Flavored with Beef Extract—Made from finest beef extract, monosodium glutamate, beef fat and seasoning. Fine for seasoning meats. In 1-lb. jars.

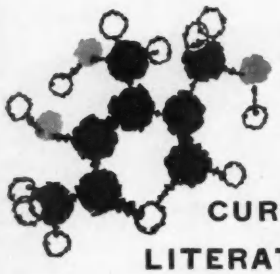
Onion Soup Base—Delicious onion soup made from a carefully seasoned base and select onion flakes, toasted golden brown. In 8-oz. jars.

KRAFT Foods Company INSTITUTIONAL DIVISION

The Nation's Taste is Your Best Buying Guide

KRAFT FOODS COMPANY

500 Peshtigo Court • Chicago 90, Illinois



CURRENT LITERATURE

Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Clara Karl, University of Chicago Clinics; Elizabeth H. Tuft, Chicago Wesley Memorial Hospital; and the Journal staff

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 5, Jan.–Feb., 1957

* Dietary survey on Rarotonga, Cook Islands. I. General description, methods and food habits. P. C. Fry.—p. 42.

Vol. 5, May–June, 1957

* Dietary survey on Rarotonga, Cook Islands. II. Food consumption in two villages. P. C. Fry.—p. 260.

Food Habits in the Cook Islands. A dietary survey was made of forty-one Polynesian (Maori) families and a missionary training school on Rarotonga, Cook Islands. The survey was conducted prior to the hurricane season, during the season, and after it, thus representing long-term food patterns and habits. Two villages, the most remote from western civilization, were chosen. A detailed description is given of this typical, rather primitive society. Cooking facilities consisted of an open fire area and an earth-oven. In general, the typical native diet consisted of several high-carbohydrate roots or fruits and fresh fish, with coconut cream as a sauce. Less starchy fruits and vegetables, legumes, eggs, and dairy products assumed exceedingly minor roles. Canned beef would be substituted for fish, at times, although fish was preferred if procurable. Bread and tea or coffee with sugar were consumed in large quantities. The families usually had three meals a day with the midday meal being the most substantial. Breakfast and supper, if taken, usually consisted of bread and tea with sugar.

Nutritive Intake in the Cook Islands. A dietary survey was made representing 30 per cent of the population of two primitive villages on one of the Cook Islands. The evidence presented showed that 60 to 95 per cent of the families consumed less than 75 per cent of the recommended allowances for calcium and riboflavin, and one-third of the families were in the same low category for vitamin A. Mission students consumed less than 75 per cent of the allowances for calories, protein, iron, riboflavin, and niacin. Other nutrients were more satisfactory for both groups. Family size influenced the dietary status; the smaller the family, the better was its rating. Weight measurements indicated overweight. However, exceptional muscularity rather than excessive adiposity accounted for much of the heaviness as there are few labor-saving devices. The comparisons made between nutrient intakes and standards should be regarded as tentative, as little is known about the nutritive composition and biologic availability of foods commonly consumed. The adequacy of a diet is determined in the final analysis by the health of the population. On the basis of this report, these Polynesians, within their short life spans, do not show overt signs of suffering from widespread malnutrition.

THE AMERICAN JOURNAL OF MEDICINE

Vol. 22, June, 1957

Seminar on bone disease. Rickets and osteomalacia. I. Snapper and D. J. Nathan.—p. 939.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 47, June, 1957

* Fluoride domestic water and periodontal disease. A. L. Russell.—p. 688.
* Pasteurization of milk containing the organism of Q fever. J. B. Enright, W. W. Sadler, and R. C. Thomas.—p. 695.
* Social and cultural implications of food and food habits. J. Cassel.—p. 732.
* Problems of antibiotics in food as the Food and Drug Administration sees them. H. Welch.—p. 701.

Vol. 47, July, 1957

* Rate of urinary fluoride output in normal adults. I. Zipkin and N. C. Leone.—p. 848.

Water Fluoridation. The periodontal status of residents of three communities with high fluoride in their water has been compared with that of residents of three comparable low- or nonfluoride communities. Ages of the persons studied ranged from seven to seventy-eight years. The domestic water supplies of the fluoride communities carried about 1.0, about 2.5, and about 8.0 p.p.m. fluorides respectively. These subjects had used the domestic water for from seven to forty-four years. Indirect evidence in the two adult groups was opposite in direction. In each case the fluoride group exhibited the more favorable periodontal condition on direct examination. Native school children in a series of communities, each with about 1.0 p.p.m. fluorides in its domestic water, were compared with migrant children in the same communities. There was a weak tendency for the periodontal health of native children to improve, relative to that of migrants, as their advantage in water-borne fluoride consumption increased. Most of the differences were slight. They are not adequate to support a hypothesis that use of a fluoride water results in improved health of periodontal tissues. The findings are, however, wholly incompatible with any hypothesis that the periodontal tissues of children or of adults are harmed by use of a fluoride-bearing domestic water.

Milk Pasteurization. The etiologic agent of Q fever, *Coxiella burnetii* (Derrick), causes an infection in many animals usually not associated with overt signs of illness. Cows, sheep, or goats are the important sources of infection for man. The Rickettsiae are shed in the milk and by this means reach man. *C. burnetii* were recovered from milk pasteurized according to the recommended minimum standards. The pasteurizing process was investigated. Heating whole raw milk for 30 min. at 143°F. is not sufficient to eliminate all the viable Rickettsiae, but heating at 145°F. for 30 min. is. The presently recommended standard of pasteurization as adequate to eliminate *C. burnetii* is 161°F. for 15 seconds.

Antibiotics in Food. Although penicillin could be added illegally to milk as a means of lowering bacterial counts, it sometimes reaches the milk supply through the improper use of a mastitis preparation for the treatment of infected dairy animals. Antibiotics in milk also interfere with cheese-starter cultures. It has been proposed that dyes be incorporated in mastitis preparations which will color the milk. Milk from infected cows is adulterated both because of antibiotics and because of its content of pus and bacteria. The problem of contamination with antibiotics in foods is small compared with other current food safety problems in the processing, production, and distribution of foods.

Food and Food Habits. Man cannot be understood out of context of his total environment. Food habits are among the oldest and most deeply entrenched aspects of many cultures and cannot be easily changed. Or, if changed, there can be some unwelcome reactions. Health workers must not be "culture bound" by imposing their own culturally determined system of values onto the behavior of others. In this regard, social scientists can help the health worker in becoming less culture bound. A case study of the acceptance of new dietary patterns by Zulu women is given.

Urinary Fluoride. The kidneys are important in the elimination of fluoride from the human body. In the present study the hourly rate of urinary fluoride elimination was determined in adults drinking water containing 1 p.p.m. fluorine (control day) and receiving in addition a challenge dose of 5 mg. fluorine as sodium fluoride (test day). After 24 hr., 65.1 per cent of the fluoride ingested during the control day appeared in the urine, whereas only 54.1 per cent appeared during the test day. Fluoride was eliminated with the greatest rapidity during the first hour after ingestion of the challenge dose. Thereafter, the rate dropped rapidly for an additional 8 hr. and then approached the rate of 0.1 mg. per hour observed during the control day. The remainder of the fluoride is found in the perspiration and feces.

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE

Vol. 17, No. 1, 1957

* Interdependence of thiamin and ascorbic acid:

INSIDE SCIENCE

THE VITAL STORY OF

Breakfast Cereals

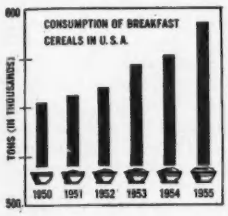
with essential vitamins and minerals restored

by Science Writer

New Edition

AMERICA LIKES BREAKFAST FOODS

Let no one doubt the popularity of breakfast cereals among Americans. The chart below traces the consumption of these fine foods between 1950 and 1955. During that period annual consumption rose by *76,000 tons*. In just one year, 1955, Americans ate 2½ lbs. of hot and 4.8 lbs. of cold cereals per person!



Why are breakfast cereals so well-liked? They are tasty; they are easily served; they appeal to busy homemakers, as well as institutional dietitians, because they are readily available in a variety of flavors at a modest cost. They add interest and value to an important but sometimes neglected meal—breakfast. Their use is extending to between-meal and party snacks, too.

Many grains are processed to make breakfast cereals: wheat, corn, oats, rice. Eaten with fruit and milk or light cream, they contribute an excellent combination of basic, flavorful, nutritious foods to the diet.

Better Foods for Better Health Through Restoration

The science of nutrition has advanced rapidly. In the manufacturing process of some cereals, some of the essential "B" vitamins and minerals are subject to some loss, just as with other foods. These losses are inescapable when such grains are prepared for human use. When this became known, manufacturers acted to overcome the losses. They adopted restoration.

Restoration simply means that certain important vitamins and minerals are restored to the cereal food during processing, so that the vitamin and mineral values in the finished product are generally equal to the whole grain values of those elements. Wheat, corn and rice products are customarily so treated. Vitamins B_1 (thiamine), B_2 (riboflavin), niacin (another "B" vitamin), and the mineral, iron, are those most widely restored. Vitamins C and D are also sometimes added.

Pre-sweetened cold cereals emphasize the nutritional importance of added vitamins. Increased calories require more "B" vitamins for best utilization of the food.

Why the Vitamins are Important

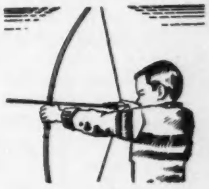
Physicians and diet experts have proved that vitamins are essential to prevent certain deficiency diseases and to contribute to robust good health.

Vitamin B_1 (thiamine) helps build and maintain physical and mental health. It is essential for normal appetite, intestinal activity, and sound nerves. A lack of this vitamin leads to beriberi, a rarity in the U. S. A., but still a very serious health problem in other parts of the world.

Vitamin B_2 (riboflavin) is essential for growth. It helps to keep body tissues healthy and to maintain proper function of the eyes.

Niacin is needed for healthy body tissues. Its use in the American diet has been largely responsible for the virtual disappearance of pellagra, a serious disease.

Vitamin D helps children develop normal teeth and bones. It prevents the development of certain abnormal bone conditions in adults.



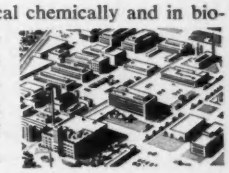
Iron is essential for making good red blood and for the prevention of nutritional anemia.

Where Do the Vitamins Come From?

At about the same time that processing losses in breakfast cereals became known, other developments in the scientific world made available ample supplies of vitamins at economical prices. Thus, the nutritional contribution of some breakfast cereals could be, and was, greatly improved through restoration.

Since the early days of breakfast food restoration and of white flour and white bread enrichment, the world-famous firm of Hoffmann-La Roche has supplied top quality vitamins *by the tons*. Pioneering work in its laboratories and by its collaborators resulted in the "duplication" of some of nature's extremely complex substances. First, the chemical composition of the vitamin was learned. Second, the pure substance was isolated. Third, the "duplicate" was made by synthesis. And fourth, the laboratory techniques were extended to large scale commercial operations.

The manufactured "duplicate" is identical chemically and in biological activity with nature's own product. A vitamin is still a vitamin regardless of whether nature or man made it. So efficient is large-scale manufacturing, that vitamins are sold at a lower cost than if they were extracted from natural sources.



This article is one of a series devoted to the story of vitamin enriched or restored cereal products: white flour, white bread and rolls, corn meal and grits, macaroni products, white rice, breakfast cereals, farina. Reprints of this article, of any other in the series, or of all are available without charge. Please send your request to the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada, Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.

(*Advertisement*)

effect of ascorbic acid supplementation to thiamin deficient rats. K. R. Bhattacharya.—p. 5.

* Supplementary value of orange juice powder to poor rice diet. G. S. Siddappa and B. S. Bhatia.—p. 15.

* Studies on the nutritive value of Indian wheat. Part II. R. M. Banerjee and N. B. Das.—p. 19.

* Supplementary value of fresh jack fruit with or without honey to poor rice diet. G. S. Siddappa and B. S. Bhatia.—p. 23.

* Studies on the effect of canning and storage on the nutritive values of some common vegetables. Part IV. Changes in ascorbic acid, thiamin, riboflavin and niacin value of green pea (*pisum sativum*). M. C. Malakar and S. N. Banerjee.—p. 27.

Interdependence of Thiamine and Ascorbic Acid. The interrelationship between the vitamins of the B-complex and L-ascorbic acid has been investigated by several workers. In B-vitamin deficiency in the rat it is expected that the animal in reality would be subjected to a dual deficiency—one of the particular B vitamin in question and another, of ascorbic acid. What occurs when ascorbic acid is supplemented in the diet of thiamine-deficient rats is indicated in the testing of control rats described in the article. First, supplementation of ascorbic acid had no significant effect on the blood pyruvic acid level in thiamine-deficient rats. Second, tissue reserve of ascorbic acid was decreased. The average survival period of thiamine-deficient and of thiamine-deficient but ascorbic acid-supplemented rats was 7 and 8.3 weeks respectively. At the end of six weeks, the former showed a small net loss in body weight and the latter a small net gain.

Orange Juice Powder in a Poor Rice Diet. In this investigation, young rats were used to study the supplementary value of two powders used in four different rice diets. The weekly increase in body weight of the rats and the food intake were recorded. Observations were made on the health of the rats, and all data were statistically analyzed. There was no significant difference in gain in weight among the four diets in the case of the two kinds of orange juice powders, and food intake was almost the same in all cases. All animals maintained normal health. The conclusion, therefore, is that the reputed beneficial value of orange juice should be looked for in factors other than mere growth.

Nutritive Value of Indian Wheat. Thirteen varieties of wheat grown in Bombay during 1951–52 were analyzed. Six varieties were grown under dry conditions, seven grown under irrigated conditions. Samples were collected from general multiplication plots where wheat is rotated with Bajri under dry conditions and onion under irrigated conditions. Crops grown before the wheat were manured, but the wheat was without manure. Soil conditions were known, and samplings were obtained and prepared by control. Results of analysis and breakdown into chemical constituents showed that constituents are within normal range; that protein content and the weight per 100 grains are high; that crude fiber, ash, and phosphorus are low; and that gluten is relatively low as compared with protein in both *Triticum durum* and *T. vulgare*.

Jack Fruit in a Poor Rice Diet. To learn whether fresh ripe jack fruit would have an effect different from that of canned jack fruit, feeding experiments on rats were carried out, using the fresh jack fruit with or without the addition of a small quantity of honey. Since honey is reported to have some beneficial effect on the retention of calcium in infants, calcium and phosphorus metabolism of the rats was also studied. Results showed that replacement of 25 or 50 per cent of rice in the diet with jack fruit pulp did not affect the growth rate significantly. However, the addition of a small quantity of honey to the diets led to a significant increase in growth rate. The retention of calcium in the jack-fruit-and-honey-fed rats was lower than in those rats whose diets had been a simple, poor rice diet. However, after a twelve-week period, there were no significant differences in the calcium retention of the four groups on the four diets. Past the twelfth week, the addition of honey to the diet caused a greater retention of phosphorus. It was concluded that the addition of honey to the diet along with jack fruit has a beneficial effect on growth.

Nutritive Value of Canned and Stored Vegetables. The effect of blanching, autoclaving, and storage on the ascorbic acid, thiamine, riboflavin, and niacin contents of green peas was discussed. It was shown that during blanching, ascorbic acid is lost to an extent of about 23 per cent; thiamine, 16 per cent; riboflavin, 27 per cent; and niacin, 6 per cent. During autoclaving, 47.5 per cent of ascorbic acid, 17.6 per cent of thiamine, and 12 per cent of niacin that remained after blanching are lost. There is, however, no loss of riboflavin during autoclaving. During six months' storage, 80 per cent ascorbic acid, 29.5 per cent thiamine, and 47.7 per cent niacin that remained after autoclaving were lost. The total loss of the vitamins increased progressively with the duration of storage. Riboflavin content, however, increased during six months' storage to nearly double the amount that remained after autoclaving.

ANNALS OF INTERNAL MEDICINE

Vol. 46, June, 1957

Acute peptic ulceration following cardiac surgery. D. Berkowitz, B. M. Wagner, and J. F. Uricchio.—p. 1015.

A study of the relation of the ABO blood groups to peptic ulceration and hypertension. S. Pell, C. A. D'Alonzo, and A. J. Fleming.—p. 1024.

The psychosomatic approach in medicine. H. I. Kaplan and H. S. Kaplan.—p. 1063.

ARCHIVES OF INTERNAL MEDICINE

Vol. 99, June, 1957

* An inquiry into "bangungut." J. B. Nolasco.—p. 905.

"Bangungut." "Bangungut" is the term used to describe an entity characterized by sudden death among young Filipino men during sleep following a heavy meal. Reports from animal experiments suggest that death is due to a potent vasopressor substance (or substances) in certain articles of the Filipino diet. The substance is thermostable and is present particularly in fish subjected to partial decomposition.

THE BRITISH JOURNAL OF NUTRITION

Vol. 11, No. 2, 1957

* Serum electrolytes and proteins in kwashiorkor. W. M. Politzer and S. Wayburne.—p. 105.

* A comparative study of the diets, and results of some blood analyses, of children living in different environments in Jokjakarta (Central Java). Yap-Kie-Tong.—p. 158.

* Fish products as protein supplements to cereals. K. J. Carpenter, G. M. Ellinger, M. I. Munro, and E. J. Rolfe.—p. 162.

* Effect of a low-protein diet on the chemical composition of the bodies and tissues of young rats. E. M. Widdowson and R. A. McCance.—p. 198.

Serum Composition in Kwashiorkor. Serum electrolytes were investigated in sixty-three patients suffering from kwashiorkor, eleven of whom died. No correlation was found between the degree of edema and serum sodium or potassium levels. There was no correlation between the severity of diarrhea and the serum sodium levels. The serum potassium level was reduced in subjects with diarrhea, and severe hypokalemia was present in four of the fatal cases. There was only limited correlation between the changes in total serum protein and albumin and subsidence of edema.

Child Nutrition in Java. A comparative study was made of diet and biochemical blood findings of children in Central Java living in three different economic environments. The intake of energy and nutrients, with the exception of calcium, and the level of serum protein and of blood hemoglobin, vitamin A, carotene, and calcium in the group of doctors' children conformed to generally accepted levels of normality. The nutritive value of the diet and the low blood values in the poor-area children indicated a deficiency state. The children living in an orphanage and consuming a diet similar to the average diet in Central Java, with relatively low intakes of calories and nutrients, showed blood levels that may be considered as characteristic of children suffering from the type of chronic malnutrition endemic in Central Java.

Fish Products as Protein Supplements. The protein fraction of fish is of high nutritive value and, as with other protein sources, this value is reduced by drastic processing methods. Recent studies have shown that there is considerable reduction in nutritive value with drying procedures that had been regarded as relatively harmless. In this study, a number of dehydrated fish products were tested as supplementary proteins to cereals by the standard "gross protein value" technique with chicks. Commercial fish meals gave values approximately 10 per cent below those of preparations made by low-temperature drying processes. The value of dried cod fillets (2 to 3 per cent moisture content) was not significantly reduced by holding the product

Meat...

and the Need for Adequate Protein in Therapeutic Nutrition

Liberal protein intake is considered to be of therapeutic value in a wide variety of pathologic conditions.[1] Advances in the understanding of protein metabolism indicate that dietary protein should provide amino acids in proportions paralleling physiologic needs.[2, 3] In experimental studies with animals, low protein diets supplying amino acids disproportionate to needs have been shown to effect physiologic harm by depressing growth, by inducing amino acid and B-vitamin deficiencies, and by causing deposition of fat in the liver.[4]

Hence not only the *amount* of protein but also its *quality* (in terms of its amino acid proportions) is important. It has been suggested[1] that for therapeutic purposes about two-thirds of the ingested protein come from foods of animal source, whose protein resembles human body protein in amino acid interrelationships. Depending on the needs of the patient, the therapeutic diet may supply 1.0 or more grams of protein per kilogram of body weight. Adequate caloric intake is required to protect the dietary protein from dissipation for energy purposes.

Meat, with its high content of top-quality protein, holds a prominent place among foods which supply this essential for establishing satisfactory levels of amino acids in physiologic proportions. It also contributes valuable amounts of B vitamins and essential minerals—nutrients which play a basic role in intermediate metabolism.

1. Proudfit, P. T., and Robinson, C. H.: Nutrition and Diet Therapy, ed. 11, New York, The Macmillan Company, 1955, pp. 314-320.
2. Harper, A. E.: Amino Acid Imbalance, Toxicities and Antagonisms, Nutrition Rev. *14*:225 (Aug.) 1956.
3. Amino Acid Requirements of Adult Man, Nutrition Rev. *14*:232 (Aug.) 1956.
4. Amino Acid Imbalance and Supplementation, Editorial, J.A.M.A. *161*:884 (June 30) 1956. Council on Foods and Nutrition, American Medical Association: Importance of Amino Acid Balance in Nutrition, J.A.M.A. *158*:655 (June 25) 1955.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago... Members Throughout the United States

at 100°F. for 31 hr. despite considerable browning and formation of ammonia. Similar fillets raised to 11 per cent moisture content and held at 105°F. for 36 hr. lost approximately 28 per cent nutritive value. The addition of lysine to the heat-damaged fillets and to a commercial fish meal raised their value, but not with high-quality vacuum-dried fillets. It was suggested that the measure of available lysine may be an indicator of protein quality.

Body Composition of Protein-Deficient Rats. It might be expected that prolonged malnutrition due to a diet very low in protein would impoverish the cells in nitrogen. Undernourished men given a generous high-protein diet absorbed and retained great quantities of nitrogen but did not gain nearly enough weight to account for this retention according to the water-protein relationship of healthy tissues. It is suggested that during rehabilitation, considerable substitution of protein and enzymes for water and potassium occurred in the cells. This would lead to gross chemical changes in the percentage composition of the tissues. In this study, the composition of the liver and skeletal muscles and the total nitrogen in the bodies of young rats were investigated. A diet very low in protein reduced the weight of the liver and the percentage of nitrogen in it, but made no real difference to the composition of the cells of the rest of the body. During rehabilitation, a high-protein diet limited in quantity to maintain the animals at the same weight as on the low-protein diet led to growth with deposition of nitrogen in the body cells and a corresponding gain in weight, but no additional storage of nitrogen in the cells without the expected amounts of potassium and water. It is puzzling that the results for rats and men are so different.

BRITISH MEDICAL JOURNAL

No. 5029, May 25, 1957

* Influence of vitamins upon some teratogenic effects of radiation. An experimental study. D. Woollam, C. W. M. Pratt, and J. A. F. Fozzard.—p. 1219.

No. 5031, June 8, 1957

* Effect of vitamin-B complex on healthy people in a warm climate. E. M. Glaser and R. H. Livett.—p. 1331.

Vitamins and Effects of Radiation. A large body of evidence has been accumulated which indicates that the induction of a maternal hypovitaminosis or hypervitaminosis is an effective method of producing a wide range of deformities in the rat embryo. The single deformity selected for study was anophthalmia with previous studies done to select the dose of radiation that would produce suitable standard incidence of anophthalmia. In this investigation, the administration of vitamins A, B, D, E, and ascorbic acid to pregnant rats increased to a marked extent the incidence in the young of anophthalmia induced by radiation. Absence of anophthalmic young from the control group suggests that genetic factors are not involved.

B-Complex in Warm Climate. In a tropical climate, supplements of B-complex vitamins and insoluble liver fraction produced no improvement of the subjective sense of well-being and no decline in the incidence of minor illnesses among apparently healthy people on an adequate diet. Such supplements raised the serum cholinesterase level significantly above normal.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 76, June 1, 1957

* Preludin treatment of obesity in diabetes mellitus: preliminary report. R. Robillard.—p. 938.

Preludin Treatment of Obesity in Diabetes. By the double blindfold technique used for twenty-four obese diabetic patients, it was possible to identify the active ingredient of Preludin (phenmetrazine hydrochloride). Preludin tablets in lot AZ were found to be active, and those in lot BY to be placebo or inactive tablets. The action of Preludin in obesity and diabetes in fifty-one cases was studied by giving Preludin in a dosage of 25 mg. three times a day, 1 hr. before meals. Preludin in obesity caused an average reduction in weight of 1.01 lb. per week. Preludin in diabetes led to cessation of insulin injections in five cases and an average reduction of 13.2 units of insulin in ten cases. It reduced the blood sugar level on the average by 61 mg. per 100 ml. in twenty patients who did not have to take insulin. The cessation or reduction in dosage of insulin was directly related to the degree of weight loss. At this period of the investigation on Preludin for obese diabetic patients, it is possible to make the following statement: Preludin has favored the diabetic patient more than any other drug of the kind thus far used. Preludin is free of toxic effects and through it anorexic action will be of great help in the treatment of diabetes. It is hoped that diabetic patients subjected to a restricted diet will no more be victims of the pangs of hunger.

DIABETES

Vol. 6, May–June, 1957

* The mechanism of action of the sulfonylureas in diabetes mellitus. R. Levine and G. W. Sobel.—p. 263.

Sulfonylureas. This field of inquiry dates back to 1942 when a group of French physicians observed profound hypoglycemic states in patients with typhoid fever who were given what was then a new sulfonamide. Various hypotheses concerning the mechanism whereby certain sulfonylurea compounds lower the blood glucose level have been examined. Evidence gained since 1942 reveals that these drugs are able to stimulate the beta cells of the islets of Langerhans to secrete stored insulin and perhaps to produce more of the hormone. This has been concluded since sulfonylurea compounds are ineffective in pancreatectomized animals and human beings and in evisicerated animals. They are ineffective in completely alloxanized animals but give a definite hypoglycemic response in partially alloxanized animals. Histologic changes in beta cells suggest they have a trophic or stimulating action. They also demonstrate some of the metabolic phenomena known to follow the injection of insulin. However, in addition, the sulfonylurea compounds may, under certain conditions, affect liver cell activity, either by inhibiting in some manner the output of sugar or by reducing the activity of an insulinase system.

FOOD TECHNOLOGY

Vol. 11, June, 1957

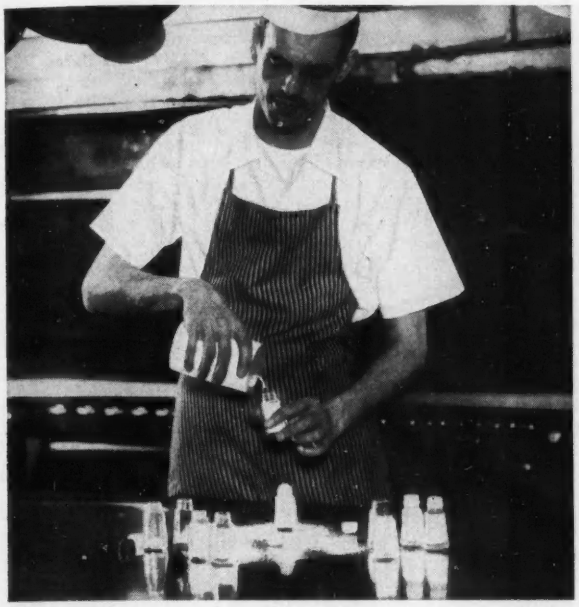
* Storage properties of gamma-irradiated potatoes. L. E. Brownell, F. G. Gustafson, J. V. Nehemias, D. R. Isleib, and W. J. Hooker.—p. 306.
* Maturation changes in tomato fruits induced by ionizing radiations. E. E. Burns and N. W. Desrosier.—p. 313.
* Bacteriological quality of ground beef in retail markets. R. E. Rogers and C. S. McCleskey.—p. 318.
* Effect of ionizing radiations on southern oysters. E. A. Gardner and B. M. Watts.—p. 329.

Potato Storage. Low-dosage gamma irradiation of potatoes can prevent sprouting and spoilage of stored potatoes without undesirable changes. The optimum effect of gamma irradiation was obtained in this study with Russet Burbank variety potatoes irradiated in late spring. Irradiation in the spring is preferable to irradiation in the fall or early winter. Russet Burbank and Russet Rural varieties have better storage properties after irradiation than does the Sebago (a white skin) variety.

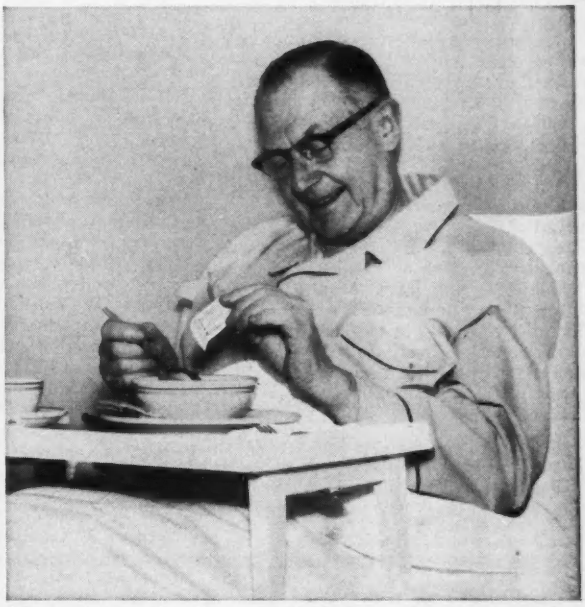
Maturation of Tomatoes. The effect of irradiation on the respiratory activities, surface color, and pigment development of tomatoes indicates that the normal maturation processes are altered. Respiration increases immediately proportional to the dose but the effect lessens with time. The effect on color and pigment development is of a permanent nature. Irradiated pink and full red samples have been observed to be more acceptable than non-irradiated controls. Low dosages had no effect on the ripening properties of green tomatoes.

Quality of Ground Beef. Samples of ground beef from retail markets were analyzed for bacteria at different storage temperatures and at different time intervals. The results of this survey justify the prevalent idea that hamburger meat is often of dubious bacteriologic quality. Samples obtained from large markets usually contained fewer bacteria than those from small. The number of bacteria depends on the bacteriologic quality of the meat used for grinding, the cleanliness of equipment, and the time and temperature of storage. Whether ground meat containing large numbers of bacteria is injurious to health or not, the product is microbially modified or semi-spoiled. Modern advances in sanitation and refrigeration have no doubt greatly

How Diamond Crystal seasoning packets end danger of cross-infection from dispensers



Old-type salt, pepper and sugar dispensers are often sources of infection. Require constant washing, sterilizing and servicing. Require storage space for both themselves and bulk seasonings.



Diamond Crystal packets are individual seasoning containers. They are disposable and sanitary. Need no servicing. And your patients appreciate their modern convenience.

Exclusive Diamond Crystal salt, pepper and sugar packets are hygienic. Save you money on labor and dispenser replacement

Old-fashioned seasoning dispensers can be an expensive problem to hospitals. They get dirty quickly. Shakers and bowls need constant cleaning. Re-filling. Sterilizing.

Considering the price of labor today, servicing several thousand shakers can really run up your operating costs.

Packets solve problem

Diamond Crystal seasoning packets are disposable. Hygienic. Eliminate dangers of cross-infection from dispensers.

Each packet contains a generous serving of either pure Diamond Crystal salt; spicy ground black pepper; or fine granulated sugar. When the patient finishes his meal, the packets are thrown away.

There is never the danger of broken glass dispensers when you serve packets.

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extended the shelf-life of ground meats, but these advances are not assurance that the quality of ground beef has improved.

Radiation of Southern Oysters. This study involved the determination of whether oysters can be irradiated at dosages high enough for partial or complete sterilization without producing undesirable side effects. Radiation of raw oysters produced an off-odor described as "grassy." Subsequent souring and fall in *pH* occurred in both irradiated and unirradiated oysters, indicating that this type of spoilage is probably caused by enzymes within the oyster rather than by bacteria. Radiation of cooked oysters produced an odor described as "oxidized." The most acceptable irradiated products after brief storage periods were those irradiated raw but subsequently heated sufficiently to destroy enzymes. Radiation of live oysters in the shell was not found to be an effective means because high doses were required to kill the oysters and the shells did not open immediately after killing doses.

INDUSTRIAL MEDICINE AND SURGERY

Vol. 26, June, 1957

* Vitamin B_{12} in acute subdeltoid bursitis. I. S. Klemes.—p. 290.

Vitamin B_{12} in Subdeltoid Bursitis. Forty patients suffering from acute bursitis were treated with large doses of vitamin B_{12} with favorable results. The simplicity of administration, virtual absence of side effects, and the results obtained merit further clinical trial and controlled study.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 5, April, 1957

* Practical considerations in functional disorders of the gastrointestinal tract. A. X. Rossien.—p. 430.

Constipation. The treatment of various types of gastrointestinal functional disorders is discussed with special emphasis on constipation. In the treatment of constipation, the therapeutic problem is to restore a normal habit by re-educating the intestinal tract. Constipation may be divided into two general types, the atonic form and the spastic form. The atonic forms require exercise, massage, and other mechanical measures, tonic hydrotherapy, and roughage in the diet. The spastic form, on the other hand, requires relaxing measures, such as a bland diet, soothing hydrotherapy, and the use of antispasmodic drugs.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 164, June 22, 1957

Weight gain and pregnancy. Editorials and Comments.—p. 877.

* Blood fatty acids in coronary disease. Foreign Letters-United Kingdom.—p. 912.

Vol. 164, June 29, 1957

* Serum potassium concentration as a guide to potassium need. J. M. Burnell and B. H. Scribner.—p. 959.
* Vitamin B_{12} absorption. Foreign Letters-India.—p. 1003.
* Macrocytic anemia. Foreign Letters-India.—p. 1004.

Vol. 164, July 6, 1957

* Spraying of fruit with insecticides. Queries and Minor Notes.—p. 1169.
* Mold on foods. Queries and Minor Notes.—p. 1171.
* Salting fresh meat to remove blood. Queries and Minor Notes.—p. 1174.

Blood Fatty Acids in Coronary Disease. The fact that atheromatous plaques are predominately lipid in composition has encouraged many attempts to correlate the incidence of coronary-artery disease with abnormalities of lipid metabolism and with an excessive fat intake. The blood of twelve patients with coronary-artery disease and of twelve normal controls was analyzed. In the red blood cell and plasma phospholipid fractions, there were no detectable differences between the amounts of fatty acids. In the acetone-soluble fraction of the plasma, there was indication of an increase in the combined amounts of monosaturated acids in the patients as compared with the controls. It is not felt that deficiency of fatty acids is a factor in the genesis of coronary artery disease.

Serum Potassium. The total amount of body potassium can change tremendously without disturbing potassium metabolism. Serum potassium concentration is an excellent guide to the potassium needs of the patient. Acidosis increases and alkalosis decreases the serum potassium concentration independently of the intracellular potassium stores. Rapid correction of acid-base disturbances will be accompanied by rapid changes in the serum potassium concentration, which reflect rapid changes in the need for potassium.

Vitamin B_{12} Absorption. The effect of administration of vitamin B_{12} on the serum vitamin B_{12} levels in normal persons as a preliminary to similar studies in patients suffering from megaloblastic anemia and related diseases was studied. The absorption of the vitamin was more rapid after parenteral than after oral administration, the maximum value being obtained 1 hr. after intramuscular injection of 35 mcg., while the maximum value after oral administration of 100 mcg. was obtained after 6 hr. The concentration of the vitamin was much greater after the intramuscular injection. The levels of the serum vitamin did not reach basal levels in 48 hr. after oral dose of the vitamin, 72 hr. after a single intramuscular injection, and seven days after intramuscular injection repeated on two consecutive days.

Macrocytic Anemia. Although certain similarities exist between the action of folic acid and vitamin B_{12}, the exact manner in which these two chemically dissimilar vitamins affect each other is not known. Patients with uncomplicated nutritional macrocytic anemia belonging to the poorest class with previous restricted diets were studied. During the study their diets were also poor with no meat, milk, eggs, leafy vegetables, or greens. It was shown that an apparent elevation of serum vitamin B_{12} levels is produced by the injection of folic acid and that a similar rise in serum folic acid levels is seen after the parenteral administration of vitamin B_{12}. It is suggested that a reciprocal relationship exists between vitamin B_{12} and folic acid whereby large doses of one tend to mobilize the other from body stores.

Spraying Fruit. There is federal legislation known as the Miller Amendment to the Food, Drug and Cosmetic Act of 1938 which regulates the allowable amounts of insecticide residue on raw agricultural products such as fruits and vegetables. There is no evidence that the use of new materials as insecticides has endangered the health of the people.

Mold on Foods. Cheese and meats that have been cured, such as smoked ham, bacon, or sausage, may be considered safe to eat if their moldy parts are removed. Fresh meat that has become spotted with mold or fungi should be discarded. Such meat, which is allowed to stand in an atmosphere suitable for the multiplication of bacteria, may cause food poisoning.

Kosher or Salted Meat. Meat is salted or "koshered" on the theory that the salt will cause the blood to leave the lymph and interstitial tissues provided the meat is then put through three separate rinsings after 1 hr. of salting. The salting does remove blood pigments; however, rinsing the meat three times with water would remove more than the salt alone and be more effective than other procedures. No evidence is available concerning the amount of salt left in the meat.

THE JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION

Vol. 21, May, 1957

* The story behind centralized food service. E. M. Wark and F. Silverlock.—p. 14.
* Clinical response to gluten-free bread. M. J. Ketchen, K. J. R. Wightman, B. A. McLaren, and E. M. Upton.—p. 28.

Centralized Food Service. This article describes the development of a centralized food service. It is recommended that much thought and care be taken in planning a new food service department, beginning with the original architectural plan and following through to the completion of the installation.

Gluten-Free Bread. A gluten-free bread developed at the University of Toronto was tested with nine patients with sprue. The clinical results are reported. The gluten-free bread was not a disturbing factor in fat absorption. The bread added food value, satisfaction, interest, and versatility to the gluten-free diet. Although the study included no children with celiac disease, there is every indication that the bread could be used in that disease.

THE LICENTIATE

Vol. 7, April, 1957

* What people eat and why? W. R. Aykroyd.—p. 14.

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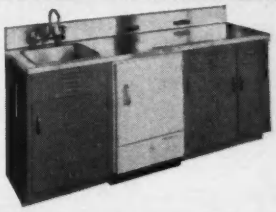

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* Over-eating and under-eating. J. Mayer.—p. 29.
* Foods and fads from near and far.—p. 39.

What People Eat and Why. People eat, for the most part, foods selected from many groups: cereals, starchy roots, pulses, sugar, fats and oils, fruits, vegetables, meat, eggs, fish, and milk. All human diets consist of these foods in varying proportions. How much variation exists in the selection of foods, from economic and cultural group to economic and cultural group, is a question which the author asks. Although processing has, in modern countries, made a greater variety of foods available to members of lower income groups, it is still true that generally speaking, lower income groups draw on the cereals and starchy roots for the main part of their diets. These foods return more calories for any given sum of money. Food patterns are based on the main food groups listed above and on the added luxuries, such as tea and coffee. Apart from the underlying factor of taste, preferences stem from an interplay between tradition, food supply, and the necessities imposed by the material and social environment. Every group tends to regard its food patterns as normal, when in fact, they are set rather deeply in national or regional cultures.

Overeating and Undereating. While one part of the modern world is still suffering from hunger and malnutrition, another part finds itself rich enough to "eat itself to death." The causes of such imbalances are examined in this article which points out that, as infectious diseases become better and better controlled, lack of food and the eating of the wrong kind of food are emerging as the greatest causes of disease in underdeveloped countries. Weakness, mortal diseases, torpor, inertia, all occur in the underfed population, tending to drag down economic efforts and drastically decreasing the ability of the population to work and help itself. While these conditions occur in poor countries, rich countries find that obesity has increased. In the wake of obesity comes a rising incidence of deaths due to circulatory ailments—diseases of the heart and blood vessels. Obesity is also associated with a much-increased incidence in the middle-age type of diabetes and liver diseases. These diseases are caused by over-abundance, a preponderance of rich fats in the diet and use of high-energy processed foods. To prevent the two extremes of poor and overly-rich nutrition, it is suggested that solutions will be found in the economic sphere which will permit the moving of food from surplus areas and overfed populations to poor areas and underfed populations. Increased understanding of nutrition planning by individuals and governments will aid in the improved nourishment of the world's populations.

Foods and Fads. People do not eat what they like, they like what they eat traditionally, and each group has to teach its children, in detail, how to like the particular foods on which they depend for sustenance. Bearing out this thesis is a collection of notes illustrating the curious reaction to special foods when they are introduced to a new population, i.e., the strange eating habits of non-western peoples as reflected on by the European or American. Notes on the nutritional worth of spinach and butter vs. margarine are given. Notes on chemicals used in foods, food colors, preservatives, and emulsifiers are also given.

MILITARY MEDICINE

Vol. 120, June, 1957
* The wholesomeness of irradiated food and its military implications. H. F. Krayhill and T. E. Huber.—p. 417.

Irradiated Food. The availability of nuclear energy for the preservation of foods has introduced a new concept of food processing. Radiation provides a means of preserving items without sustaining structural impairment caused by heat sterilization. Radiation sterilization and/or preserved foods have not been found toxic on the basis of animal and human feeding experiments conducted thus far. The nutritive value of radiation-processed foods has been found to be equal to that of heat-processed foods. The life span of laboratory animals maintained on irradiated foods has been the same as that for animals maintained on heat-processed foods. The radiation preservation of foods offers the advantage of increasing the supply of perishable foods by extending the shelf-life of perishable vegetables and meats without refrigeration, minimizing storage depreciation by inhibiting sprouting, and conserving cereal products in storage through destruction of insect infestation.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 57, June 1, 1957
* Protein nutrition. R. H. Barnes.—p. 1961.
Vol. 57, June 15, 1957
* Protein foods—supply and comparative costs. H. Degraff.—p. 2092.

Protein Nutrition. Present knowledge of nutrition advocates (a) certain dietary allowances for maintenance of good health, (b) rather high levels of protein intake for short periods to combat extreme losses of body protein such as in extensive burns, and (c) the extreme adjustments of specific amino acid intakes for the control of a few metabolic defects including celiac disease and phenylketonuria. In this country the supply of protein is plentiful. Food faddism associated with extreme loss of weight, if continued long enough, can result in a state of protein malnutrition. Furthermore, the uncritical subjection of saturated fat as the whipping boy for development of coronary heart disease may lead to protein deprivation. Saturated fats are predominantly animal fats, and when reducing fat intake, protein intake can be reduced unintentionally.

Protein Food—Supply and Costs. If all the farm land resources are converted to crop land, it is found that, equivalent on a yield basis, 15 per cent is devoted to production of food crops, 4 per cent is for industrial crops, and 81 per cent is used to feed livestock. This pattern is possible because of the resources in the U. S. The average-income family now buys its food, which is 50 per cent animal products, with little less than 30 per cent of its net spendable income after taxes. No other major population group in the world buys its food with such a small part of its income, regardless of the nutrient quality of the diet. Protein foods are relatively expensive in comparison with carbohydrates and fats, but dietary importance of protein emphasizes that these foods should not be slighted. Relative retail prices of animal protein foods are, in effect, what consumers have made them. The retailer makes the price card, but it is never out of line for long with the relative price the consumer will pay. Choice meats are highly prized and are limited in amounts. The protein value is the same in the less expensive more available cuts.

NURSING OUTLOOK

Vol 5, June, 1957
* Snacks for the night staff. V. Knotts.—p. 349.

Snacks for the Night Staff. To provide for the night staff was the problem of the nursing supervisors at a midwestern hospital—to provide something more in the way of a snack than leftovers from the day's previous meals. Between 2:00 and 3:00 in the morning was deemed the time most of the staff needed a pick-up. This was also isolated as the time when the staff could most easily take a break. A plan was set up to provide snacks from a wagon that would be wheeled through the hospital between these hours. The "cart" carried sandwiches, rolls, and milk—coffee was eliminated because it was found that the majority of the staff brewed their own coffee on the floor where they worked. To make the project self-supporting, tickets were issued from the business office for $2.50. Items bought were punched on the tickets; tickets were transferable and eliminated the handling of money. Psychologically speaking, the project was a success—the staff appreciated the pick-up and anticipated the early morning break thoroughly.

NUTRITION

Vol. 11, Summer. 1957
* Trends in dietetic treatment of gastroenterology. F. A. Jones.—p. 55.
* Natural and processed vegetable fats: their effect on health, with particular reference to ischaemic heart disease. B. Bronte-Stewart.—p. 60.
* Water intoxication. V. Wynn.—p. 73.

Diets for Gastrpenterologic Diseases. In the past twenty-one years there have been remarkable advances in the dietary management of certain gastrointestinal and liver diseases. The gluten-free diet has made striking changes in celiac disease and in a proportion of adults with idiopathic steatorrhoea. Protein has improved the prognosis in cirrhosis of the liver, par-

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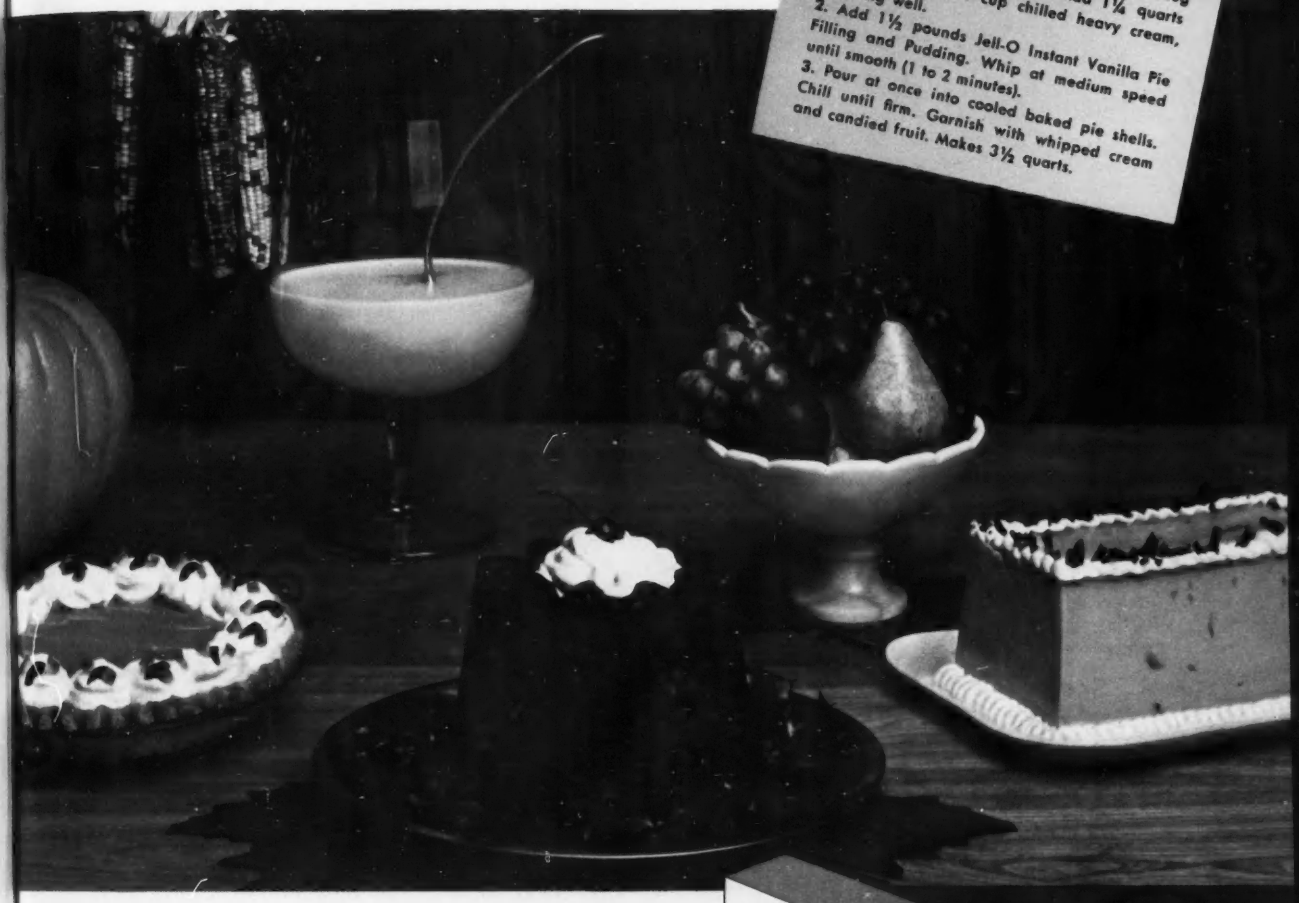

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ticularly when there are neurologic symptoms. However, in peptic ulcer and ulcerative colitis, there have been no great dietary advances and dietary influences have been shown to be less than was at one time thought. Originally, it was thought desirable to keep the diet as plain as possible to reduce psychic gastric secretion, but it became clear that a patient who was bored and irritated by diet lost weight and did not do as well as those who gained weight. The tendency today is to keep patients on milk and light diets during the acute phase when pain is present. Then, as the pain is eased, to give a basic diet of feedings every 2 hr. which are generous in calories, proteins, and vitamins. An almost normal (fried-free) diet was compared with the standard ulcer regimen in out-patients for a year. The proportion free from pain and in whom the ulcer was radiologically healed was practically the same in both groups. Likewise, in ulcerative colitis, it is more important to emphasize a high-calorie, high-protein, high-vitamin diet than to insist on the low-residue element. Some patients, however, are more comfortable with restriction of coarse fruits and vegetables.

Dietary Facts and Ischemic Heart Disease. Ischemic or coronary heart disease is by far the commonest cause of death in the Western industrialized areas, and the death rate is increasing. There is a statistically significant association between the height of the serum cholesterol level and the prevalence of coronary heart disease. Saturated and unsaturated fatty acids have different effects on the serum cholesterol level. However, qualitative changes in the fat intake appear to be more important than quantitative changes in the diet. Oils with a high content of linoleic acid (unsaturated) not only reduce the level of serum cholesterol below the level attained on a low-fat diet but also appear to counteract the effects of animal fats when fed in combination. As yet, it is not known whether the serum-cholesterol-lowering property of the highly unsaturated fatty acid fraction is due to the essential fatty acids or some other factor, at the moment chemically inseparable from them. There are wide intraracial and inter-racial differences in susceptibility to coronary heart disease. In countries with a low death rate, the population samples had low mean serum cholesterol levels and their total fat intakes were low. This relationship remained consistent over a whole range of diets varying from 8 per cent fat in the Japanese to over 40 per cent in the American. It is unlikely that race accounts for the difference, as Japanese who have come under the American mode of life in Hawaii exhibited more atheroma than those in Japan. Subdivision into income classes shows that the most privileged economically in different races possessed the highest serum cholesterol levels and groups on the same economic level, regardless of racial origin, possessed similar levels of cholesterol and consumed similar amounts of animal fat. With prosperity, there is over-consumption of saturated fatty acids and a decrease in the availability of unsaturated fatty acids. Undoubtedly, other factors are important in the etiology of this disease, such as hypertension, lack of exercise, and heavy cigarette smoking.

Water Intoxication. An excess of pure water in the body producing severe symptoms and even death is a condition called water intoxication. Distinction must be made between edema or salt-and-water retention and water intoxication. Normally the kidneys cope well with surplus water by excreting it, but in many pathologic states, this fine control is impaired. Therefore, the habit of "forcing fluids" may be dangerous in some instances. By keeping accurate fluid records and by regularly weighing the patient, the occurrence of water retention soon manifests itself and corrective measures can be taken before serious symptoms result.

NUTRITION REVIEWS

Vol. 15, June, 1957

* Endemic goiter. N. S. Scrimshaw.—p. 161.

Endemic Goiter. The prevalence of endemic goiter has decreased so markedly in the U. S. in recent years that it now receives relatively little attention. The widespread use of iodized salt is believed to have had a major influence in the decline. Also, the food marketing system has developed which introduces food from areas with adequate iodine to those areas where it is deficient. There is a trend toward increased consumption of sea food. However, endemic goiter is still an important nutritional and public health problem in many areas of the world, including most of the countries of the Western hemisphere. It is characteristic that the true prevalence of goiter is rarely suspected until specific surveys are done. The cosmetic and surgical consequences of goiter are obvious, and there is a relationship of goiter to cretinism, thyrotoxicosis, and thyroid carcinoma. When the incidence of endemic goiter in an area exceeds 10 per cent, salt should be iodized. Through the use of potassium or calcium iodate, crude moist salt can be iodized without special handling and packaging. The number of countries in which iodized salt is required by law will probably increase sharply in the near future.

PUBLIC HEALTH REPORTS

Vol. 72, June, 1957

* Climate and fluid intake. D. J. Galagan, J. R Vermillion, G. A. Nevitt, Z. M. Stadt, and R. E. Dart.—p. 484.

Climate and Fluid Intake. Interest in the physiologic response of children to climate has increased markedly with the advent of water fluoridation. It has been suggested that in the practical application less than 1 p.p.m. fluoride (the optimum level for dental caries control in most of the U. S.) may be sufficient to give optimum protection in very warm areas because the children consume more water. Fluid intakes of children from infancy to ten years of age in Southern California were investigated for a one-year period. Under normal living conditions, water intake increased directly with increases in temperature. Humidity was associated negatively with temperature to such a high degree that it was impossible to determine whether humidity might have some additional effect on fluid consumption in areas where high temperature and high humidity occur simultaneously.

QUARTERLY BULLETIN OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

Vol. 31, Summer, 1957

* Clinical use of oral sulfonylurea compounds in diabetes mellitus. A. R. Colwell, Sr., and J. A. Colwell.—p. 102.

Sulfonylurea Compounds. Because insulin is a protein and destroyed by a proteolytic digestive enzyme secreted by the very same gland from which it is obtained, it must be given by parenteral injection to be effective. Until recently, the most intriguing oral substance, studied intensively around 1930, was Synthalin, a guanidine derivative, but it caused hepatic and liver damage. Currently, there is intense interest in sulfonamide compounds—BZ-55 or carbutamide and tolbutamide or "Orinase." These compounds are not substitutes for insulin. Their use is dangerous in diabetic emergencies and in patients with relatively severe diabetes who are dependent on insulin. In mild diabetes, especially in people more than forty years old at onset, they can and should be used experimentally. The chronic toxicity of carbutamide has caused it to be withdrawn from use in this country. Orinase is now being used. Before routine therapeutic use of sulfonylurea compounds is accepted, the question of safety in prolonged use and whether sugar-reducing capacity is due to a physiologic, truly antidiabetic mechanism or to a pathologic process must be considered.

SCIENCE

Vol. 125, June, 1957

* Changes of body weight in normal men who stop smoking cigarettes. J. Brožek and A. Keys.—p. 1203.

Weight Changes after Stopping Smoking. Men who voluntarily stopped smoking cigarettes and on whom weight data are available for two years before and two years after were compared with a control group who did not stop smoking. There was a mean gain of over 9 lb. in the experimental group. The question of the permanence of the gain beyond two years remains open. The increase in smoking among individuals who are on reducing diets and the inhibition of gastric hunger contractions suggest that smoking tends to depress the felt need for food.

SOUTHERN MEDICAL JOURNAL

Vol. 50, June, 1957

* Problems in the management of bleeding peptic ulcer. J. S. Levy, J. H. Hardin, K. Juniper, Jr., and P. O. Thomas.—p. 759.

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THE TOHOKU JOURNAL OF EXPERIMENTAL MEDICINE

Vol. 65, February 25, 1957

* Free amino acids in the gastric juice of patients with gastric cancer. F. Shimizu.—p. 229.
* Studies on cirrhosis of the liver. II. Influences of temperature and nutrition on the production of cirrhosis of the liver. T. Nakamura, S. Nakamura, K. Sugawara, Y. Katakura, T. Isono, and E. Kawamura.—p. 255.

Amino Acids in Gastric Juice of Gastric Cancer Patients. By the method of paper chromatography, it was found that the free amino acids in gastric juice exceed the normal level in cases with gastric cancer. The free amino acids that were detected most markedly in gastric cancer patients were leucine, valine, and alanine, which appeared in gastric ulcer patients though to only a slight degree.

Cirrhosis. There is a significant positive correlation between the mortalities from liver cirrhosis and temperatures in the prefectures of Japan and in the countries of the world of mean annual temperature below 16°C. which suggest that the mortality is influenced by temperature by a certain mechanism. Rats were fed on choline-deficient diet without cystine at temperatures of 7° and 22° C. At the lower temperature the liver fat content was less. The prevention of deposition of liver fat at lower temperature seemed to be due to the increased protein intake of the cold. In mice fed a choline-deficient diet with added cystine, temperature had no effect. The influence of nutrition on the production of cirrhosis due to carbon tetrachloride was investigated. Carbon tetrachloride increased the collagen content and decreased serum albumin. Protein, choline, and α-tocopherol had no influence on collagen and serum protein. Fibrosis of the liver of rats was more advanced when fed a high-protein diet over a low-protein diet.

DINER DRIVE-IN

Vol. 16, July, 1957

* How to wash pots and pans. D. E. Lundberg.—p. 34.

How to Wash Pots and Pans. To avoid having to hire a new pot man every week, the author suggests an "enlightened" approach to the job. First, for social reasons, change the pot boy's title to utility man, and then, give him good tools to work with. Train him to do a good job and be sure the average wage rate takes into consideration the fact that work conditions can never be anything but fairly unpleasant. Before training anyone for the job, know the basic rules of pot washing: (1) protect hands with a silicone treatment; (2) save time and energy by picking up utensils for cleaning on a hand truck at regular times during the day; (3) scrape waste into can, not the sink; (4) sterilize pots and pans in boiling water for 2 min.; (5) scrape loosened soil over soak sink, not over clean wash water; (6) be sure you have the *right* amount of detergent in the wash sink; (7) keep rinse water as hot as the hands can stand it; (8) scrub pans inside and out; (9) spray rinse every utensil; (10) see that drains stay unclogged; and (11) keep the station clean.

FOOD ENGINEERING

Vol. 29, June, 1957

* Pointers on controlling dosage in food irradiation. G. E. Danald and D. F. Farkas.—p. 60.
* Advances in freeze-drying and irradiation cited. FE Staff.—p. 100.

Pointers on Controlling Irradiation. The commercial use of irradiation in food processing presents challenging problems. Among them are the questions of adequacy of equipment and control of the radiation "dose." At present, no machines are available which can irradiate, under typical production-line conditions, the tonnage quantities of foods required for commercial distribution to provide products having guaranteed wholesomeness paralleling that of the frozen, dehydrated and thermally processed items. In the future, electrons generated in large machines stand as candidates for the job of food-irradiation preservation. Preservation by electron-beam irradiation will require careful dosimetric measurements at all stages of the operation. After machine and product and package combinations are decided upon, the requisite parameters that call for measurement and control must be enumerated. To test the measurement and control devices, physical, chemical, and biologic measurement techniques will be required. A set of values will be distinguished for each product to be irradiated. Then there will be application of the limits within which each control may vary. For a number of months after initiation of operations a quality control dosimeter (which will control radiation processing of foods just as the thermometer now controls thermal processing) probably should accompany each food package that is irradiated. The largest concentrated effort aimed at achieving the needs for commercial application of radiation processing of food is directed at present by the Department of Defense and, specifically, the Quartermaster Corps.

Advances in Freeze-Drying and Irradiation. At a recent meeting it was reported that a possible breakthrough in food preservation by freeze-drying might soon occur. Good quality, easy-to-reconstitute products with storage stability can be produced. The problem now is to develop the equipment necessary. Possible break-through techniques considered were nail or spike drying, vacuum-contact plates, dielectric heating, and radiant heating. It was found that dielectric heating was most rapid. Progress in food irradiation is also reported. It has been discovered that as an adjunct to conventional heat processing, irradiation might enable processors, like those putting up canned hams, to avoid full heat treatment. Complementary effect of heat treatment and radiation (with gamma rays) of bacterial spores showed that increasing doses of gamma radiation increased their heat sensitivity. By accelerating germination of bacterial spores, radiation dosage could be reduced to minimize off-flavor development. Irradiation of liquid egg products for destroying bacteria of the Salmonella group is now commercially feasible. Reported, too, is the fact that there is a non-significant difference in whipping volume between irradiated and non-irradiated spray-dried egg solids, although irradiated eggs need longer whipping time. Other reports: The best way to sterilize apple slices by radiation is to process mature apples immediately after harvest by blanching in dilute sugar solution, vacuum-packing, freezing, and irraditing at 0.5 megarep. The treatment yields six months' storage life at 75°F. Use of a centrifugal filmer for ultraviolet irradiation of egg white shows promise as a practical Salmonella control measure. New enzyme discoveries include the report that removal of oxygen from hermetically sealed containers of whole dry milk is effectively achieved by including packets of glucose-oxidase-catalase. It was also stated that chemically treated filter paper is a convenient tool for routine peroxidase determination. The development of pink color in onions during dehydration is not due to bacteria—the color comes from enzymatic action that produces a colorless compound which reacts with amino acids in the onion juice.

FOOD SERVICE MAGAZINE

Vol. 19, July, 1957

* The temperature control story. G. Patrick.—p. 16.
* The profit in peaches. I. L. Dolan.—p. 28.

Temperature Control. When cooking with electricity, by all means make full use of the thermostat. The thermostat enables you to put heat where it will do the most good and to control that heat with pin-point accuracy. A description of how the thermostat works in five types of cooking is given. In surface cooking, control of range tops enables you to handle cooking extremes —from delicate soufflés to bulk stockpot work. In baking and roasting, a thermostat controls heat temperature in each individual oven section so that you can

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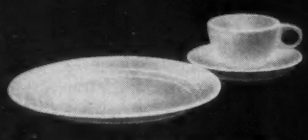

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Profit in Peaches. The enormous California peach crop which is used almost exclusively for canning insures the enjoyment of cling peaches year round in the U. S. Close cooperation between growers and canners means an always improving product. For example, it is now possible to harvest fully sunripened peaches for canning and preserve the rich flavor and close textured flesh in the can. These peaches come in cans sized to meet the needs of every feeding operation. There are also suitable grades for every type of feeding operation. Fancy, Choice, Standard, Pie, and Solid Pack Pie peaches are packed in six types of environments: extra heavy sirup, heavy sirup, light sirup, slightly sweetened water, water alone, or peach juice alone. Golden canned cling peaches add sparkle and variety to menus. On hot or cold cereals, with waffles or hotcakes, in muffins, in quick coffee cakes and meringues, they are impressive and always saleable.

HOSPITAL MANAGEMENT

Vol. 84, July, 1957

* Food service management. D. Kramer.—p. 88.

Food Service. The author maintains that the food management services or the catering services have entered hospitals with three advantages: better management, improved purchasing, and better cost control of the dietary department. However, the hospital administrator and his food service manager can meet the standards and efficiency of any outside service if they really want to. The advantage of keeping the control of the dietary department within the hospital is great enough to warrant the effort needed to improve the administration of the dietary department. Profits that would normally go to a catering service can be applied to improving the department. The hospital can counter the catering service's claim to savings on purchases by joining a purchasing organization. Retaining the department will mean firmer loyalty of employees who like the idea of belonging to the hospital team. In addition, with the department under the hospital's own management, decisions can be made on the spot and will not be subject to delay while waiting confirmation at some distant office. The hospital with its own personnel department can supply dietary workers as well as any catering service. The advantages of hospital-run dietary departments can be great only if an honest and critical look is taken of the department organization. The drawbacks which have prompted administrators to call in the catering service must be spotted, analyzed, completely understood, and corrected. A good food service administrator is the greatest improvement any dietary department can acquire. He or she will make changes and keep the changes intact after the revamping is completed.

HOSPITALS

Vol. 31, June 16, 1957

* Summer is salad time. H. D. Gebert.—p. 80.

Vol. 31, July 1, 1957

* Personalizing patient food service. R. Wiley.—p. 80.

Salads in Summer. Recipes for fruit and vegetable salad entrées are included with this article in the hope that hospitals may achieve the success which has provided patients of one midwestern hospital with summer menus that they really enjoy and which are nutritionally adequate. The "fresh fruit plate," "chef's hearty salad bowl," "tomato stuffed with crab meat," and "cream cheese, olive, and nut sandwich —spiced pear" are all described in detail with complete instructions for assembling. A chart giving the comparative costs of salad and meat entrées offered together on a selective menu is also given.

Personalizing Patient Food Service. In a smaller hospital the dietitian often has a better opportunity to know her patients' food likes and dislikes and to personalize the menu for each patient. This personalization cannot be accomplished, however, by the dietitian alone. The cooperation of an excellent chef and centralized tray service are of great importance in giving special attention to each patient's meal. The nursing staff, too, makes its contribution to the dietary program. When the dietitian makes her daily rounds, she is given a brief report by the nurse in charge on patients' attitudes and progress. Written dietary requests giving the patient's name, age, diagnosis, doctor's name, and diet order are sent daily to the kitchen. Menus are written a week in advance, and although there are few choices on the typed menus which the patient receives, he is always told by the dietitian that he is free to request substitutes. Selective menus cut food waste. During her daily visits to patients, the dietitian has an opportunity to teach adequate as well as therapeutic diets. All patients can request and receive information from the dietitian, but naturally, patients on therapeutic diets receive most attention, and as much menu choice as possible is given to patients on restricted diets. As an example of the fine individual service observed at this hospital, individual insulated coffee pots and insulated serving bowls to keep patients' coffee, soup, cereals, and ice creams at the right temperatures are used.

THE HOTEL MONTHLY

Vol. 65, June, 1957

* What your customers think about eating out.—p. 28.

Motivation in Eating Out. A recent, limited survey indicated that eating out satisfies many needs: releasing pressures, tensions, and frustrations; satisfying the social instincts and the need for personal security; gratifying the instincts and rousing strong guilt feelings in pampering to desires for luxuries. The survey revealed that there are strong ceremonial values attached to dining in public. Symbols of prestige, such as the selection of the food itself and the choice of atmosphere figure largely in the motivational behavior of patrons. Questioned diners revealed that the quality of food and service was remembered and appreciated mainly through small details such as the specific words used to describe an item on the menu, the symbols used to communicate a specialty (such as an exposed charcoal broiler), special ceremony on special occasions, and extra attention to children. It was learned that people identify social eating out as eating with children and deluxe eating out with entertaining friends. The important needs operating in the area of business dining appear to be the need to impress, which brings into play the need for distinctive food and prestige-laden atmosphere, as well as individual attention and recognition; the need for conditions that permit some business to be undertaken or transacted. The business diner feels that once the meal is on the table, service must be available but unhurried and unobtrusive. It was found that most food is judged by its presentation on the plate or steam table and by temperatures and textures more than by taste. It was shown that service is most often judged by tone (friendliness, not officiousness); by care evidenced in listening for the precise order, good timing, deftness, and correctness in serving the food; and by the awareness on the part of restaurant personnel of the social, ceremonial, or business needs of the situation.

INPLANT FOOD MANAGEMENT

Vol. 4, June, 1957

* Poor advance planning may cause more errors in future.—p. 54.

Poor Planning Causes Errors. The results of poor planning as contrasted with the advantages of successful, prior planning of the inplant cafeteria are striking indeed. Glaring errors occurring in brand new plants where skilled planning has been employed on everything but the kitchen were noted repeatedly. Errors of layout were most common, and the reasons for these errors are credited to two main factors: first, layouts for kitchens and dining rooms are often farmed out to individuals who

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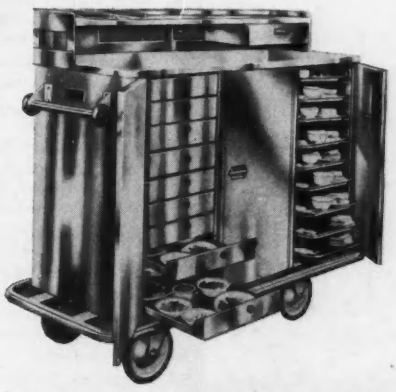

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have had little or no experience in actual food service operation. Then too, the man who would be in a position to recommend, criticize, and catch errors, the food service manager, is either not consulted, or when he is, does not give his superiors the full advantage of his working information and his knowledge of kitchen operation. Thus an unbiased counsel is obviously needed. The outside consultant can best make a check of the kitchen and dining room plans. With labor costs high and going higher, efficiency is of prime importance. Every extra step the worker takes because of poor layout means a cut in profits, and because the industrial cafeteria has a limited potential with respect to patronage, it cannot offset inefficiency with extra or increased business. Fringe benefits for employees further "up" the costs of operation. It would seem clear that the food service manager and the independent outside consultant must make advance checking part of the building procedure for any new feeding operation.

INSTITUTIONAL FEEDING AND HOUSING

Vol. 9, July, 1957

* Training a new employee: how to do it with pictures. J. Welsh.—p. 10.
* How thawing and refreezing affects quality of frozen foods.—p. 12.
* Spark up your cold plates with ready-to-eat meats. E. Blair.—p. 24.
* How to buy fresh tomatoes and corn. R. A. Seelig.—p. 34.
* Product development report—mechanical food waste disposers.—p. 44.

Training with Pictures. Visual aids for training new employees need not be complicated or expensive. A series of photographs can teach effectively. Essentially a job picture story is an abbreviated filmstrip with several additional advantages. It teaches more thoroughly. Each picture has its caption which explains the action caught in the camera—the employee can study the caption and picture thoroughly. Pictures cost less than filmstrips, are more flexible, and provide a fine introduction to on-the-job instruction. Also, the photo sequence can provide supervisors with a series of key points on which to base training.

How Refreezing Affects Frozen Foods. After thawing, refreezing, and again thawing 80 lb. ground beef from sixteen-month old Angus steers which were inoculated with bacteria, evidence of bacterial growth and slightly decreased palatability were noted. No marked increase in fat deterioration was observed. Uninoculated meat was edible at the end of the third thaw-refreeze cycle. After the third thaw-refreeze cycle sixty White Plymouth Rock broilers showed a marked increase in bacteria and fat deterioration had set in. Some of the broilers were considered inedible. Using asparagus, the refreeze process resulted in a large increase in drip, although no loss of ascorbic acid was observed. Texture, flavor, and palatability were inferior after the first cycle. With peas, not much change was noticed. Flavor did not deteriorate until after the third cycle. Strawberries did not fare so well. Evidence of bacterial growth during the three cycles was noted. A loss of ascorbic acid and a great change in drip value occurred after the first cycle. Berries were considered inedible after the third cycle.

Buying Fresh Tomatoes and Corn. You cannot rely on redness alone in selecting tomatoes. It is easier to select tomatoes that only show some red color —this type of tomato must be given special care in packing and shipping or it will suffer much damage. Tomatoes should not be exposed before they are ripe for too long periods of chill temperatures. When buying, insist that you do not want tomatoes that have come from cold-weather areas, that you don't want tomatoes that have been kept cold on a sidetrack for days, and finally, that you don't want tomatoes that have been shipped at temperatures below 50° F. Watch for a ring of decay around the stem scars on pre-ripened tomatoes. Watch also, for numerous lesions around skin breaks on the surface of the fruit. Selecting corn involves so ne tasting. The only way to tell "sweet" corn is to taste—avoid green corn and field corn. The ears of sweet corn are smaller, and husks are generally darker green with ribbon-like ends that give the corn a ragged appearance. Cobs of quality should be well filled with bright, plump, milky kernels that are just firm enough to offer slight resistance to pressure. Dry, yellowed, or straw-colored husks are an indication of age or damage. Yellow corn should be preferred by the buyer because it contains vitamin A while white corn does not. Corn should be bought on a day-to-day basis, never served more than a day after purchase. Keep well iced or cold and moist.

Mechanical Food Waste Disposers. Intelligent installation and use of mechanical food waste disposers prevents unsanitary conditions, saves space, and cuts labor costs. Installation follows two basic patterns—a central disposal station and "point-of-origin" stations, or a combination of both. To decide what type of set-up is best, the kitchen operation must be analyzed carefully and the number of units and their sizes determined. The size of most disposers and the volume of waste that they can grind correspond to the horsepower of the electrical motors; generally, the higher the horsepower, the greater the grinding capacity. Hammer mill and impellor mechanisms are the two operating principles used in disposers. Most of the smaller designs use the latter principle and are installed under the counter. Large units are usually provided with their own tables. Many factors, such as plumbing and local sewage set-up, affect installation and installation costs. Disposers can be equipped with semi-automatic switches, over-load protection devices, and silver-ware traps. Cost of units generally corresponds to size: models of ½ or ⅓ h.p. range from $200 up to $485. Maintenance costs depend on care given the machine, but it usually stays under $100 per year.

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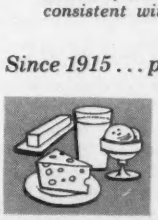

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INSTITUTIONS

Vol. 41, July, 1957

* Reduce costs with expense control. A. C. King.—p. 42.
* Spice chart.—p. 99.
* How to specify fabricated meats.—p. 118.

Reduce Costs with Expense Control. Reducing costs, other than food and payroll, can result in substantial savings for the food service operator. Control of sales, meals for employees, uniforms, laundry, kitchen fuel, linen, china, glassware and silverware, cleaning, menus, printing, and other items of this sort are what the author has in mind. Suggestions regarding control of sales include these check points: checks should always be consecutively numbered; employees should be required to sign for checks; the customer should pay the cashier directly; a permanent record of register reading should be kept; and assign a food checker to the banquet kitchen if banquet business is large. As regards china and other equipment, the author has these suggestions: Set up a par stock of each item for each dining room. Take two inventories a year. Watch breakage and losses, and make a bonus incentive—pay employees for keeping breakage below a certain point. Make reports on laundry showing the number of items handled per 100 persons. Require that soiled employee uniforms be turned in before issuing clean garments. Where cleaning enters the picture, keep a check on supplies; install measuring devices so things like soap will not be wasted. Save on employee meals by issuing punch cards, allotting certain monthly sums for supervisors, restricting the menu for lesser employees, and allocating after-hours for the eating times of employees. Be sure that you are not wasting money on printing and menus. Select good quality paper so that menus will not need to be discarded so frequently. If any sharp increase in an expense item turns up from month to month, review and investigate it.

Spice Chart. Printed here is a complete spice chart which tells how much spice to use and where. Twenty-eight spices are listed with the dishes they compliment best. Here's a tip that goes with this chart: when trying a new idea, it is safest to start with ¼ tsp. spice for 1 pt. of sauce, soup, or vegetable or 1 lb. meat, fish, or fowl.

Specifying Fabricated Meats. In obtaining the grade of meat specified, purchasers must depend on the honesty of the purveyor as government grading is confused in this area. Weight limitations and portion control information should be given. Type of cutting or trim of cut should be specified. Length, thickness, and area from which the cut will come should be given along with percent of yield expected from the primal cut. Depth of cover or fat allowed on the portion cut should be defined. Quantity of bone allowed and sometimes how it should be removed should also be specified. A chart which gives the yields desired in prefabricated meats accompanies this article.

THE MODERN HOSPITAL

Vol. 89, July, 1957

* First define the job, then set the salary. J. H. Holmgren.—p. 63.
* Standardization leads to lower costs. R. P. Lawton.—p. 106.

Define the Job, Then Set Salary. The author has prepared an instructive outline of procedure to be used by the administrator, the job analyst, or coordinator to establish an acceptable job evaluation and an objective salary plan. After the job analyst or coordinator has been selected and an outline or work schedule developed, call a meeting of supervisors to explain the job and salary review. Employees should be informed next and told the reasons for making the review. In starting the actual analysis, first, distribute job questionnaires to all employees through their supervisors. Have supervisors check the questionnaires. Group all jobs by department and occupation. Develop organization charts of the hospital and each department showing job titles and lines of supervision over each job. Assign tentative job titles to each questionnaire based on the job duties described. Then, prepare a description of the duties based on questionnaires and charts. Break down requirements in training, experience, and responsibility for each description. Check with department heads and revise where necessary. Next, rate jobs and develop a classification plan, and, after ranking, check the final list with department heads for revision. Make a community salary survey, visiting community administrators and businessmen to obtain actual salaries and hours plus fringe benefits accruing to each job. Convert all outside salary data to the same method of salary payment as used in the hospital. Add compensation for free meals or room allowances. Develop average rates for all jobs. Compare rates thus determined with those in the community. After the new salary schedule is made, introduce it to employees through their supervisors. Review the program as it is carried out.

Standardization Leads to Lower Costs. Standard items of food in standard packages served in standard portions make purchasing more convenient and make possible the use of the same unit price in cost accounting. According to the author, it is more important than ever before that the dietitian know costs and adhere rigidly to a strict system of food service control. It is only by planning in advance, against an estimated per serving price on each menu, that the dietitian can control her basic ordering and cut or add to the menu so that per serving costs are kept within a previously ascertained range. To do this personnel must be controlled, machines substituted where they will achieve economy, and standardized service (plates and glassware which hold correct portions) substituted for older and overly generous service. The hospital's total food expense must then be calculated periodically, in advance. The future menus should fit into an official, approved budget. A leakproof requisi-

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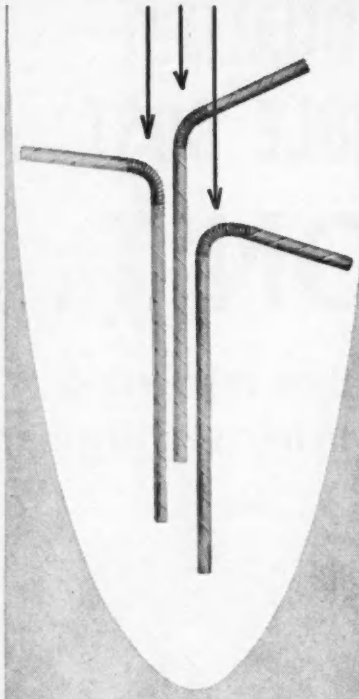

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tion and issue system which will insure and support the success of the control plan should be set-up. Raw food costs must be estimated and all actual cost promptly checked at the end of a budget period. In addition to standardizing on items, packages, and portions, all issuing of food should be under the control of the head dietitian.

PERSONNEL JOURNAL

Vol. 36, June, 1957

* Relieving personality conflicts by a kind of group therapy G. A. Peters and J. G. Phelan.—p. 61.

Group Therapy Relieves Conflicts. Several steps are taken in the successful execution of group therapy sessions. It is necessary first to conduct individual interviews with the group participating in the session. This step relieves the group leader of the burden of attempting to diagnose each individual in the fluidity of a changing social structure and saves much time. Before actual therapy begins, a planning step should be taken. Publicity or propaganda should be manufactured and after sign-up of volunteers, the procedure to be taken during the actual sessions should be mapped. During therapy, the group leader, keeping his plan in mind and maintaining an inconspicuous control, should warm-up the group during an introductory period that will establish rapport. When the participants are assigned roles to play in a particular conflict situation, the leader should guide participants to ego-involvement so that habitually-used, protective mechanisms or defense reactions are called forth. After ventilation of feelings, clarification of the content of reactions should take place and solutions to stressful social situations worked out by the participants. Next, the group leader should attempt to promote some understanding of why various participants reacted as they did. Finally, the situation should be acted out again and at the close of the session, the group leader should attempt to foster feelings of acceptance and reduce any discomforting tension. Individual consultation with each member of the group should be made after dismissal of the group.

QUICK FROZEN FOODS

Vol 19, May, 1957

* Portion-control meats—answer to labor, cost problems.—p. 145.
* Nutritious frozen vegetables, fruits, save space, time, labor, money.—p. 148.
* Frozen meat cookery—a guide to easy preparation.—p. 154.

Frozen Meats Answer Labor, Cost Problems. The case for frozen, portion-control meats can be summarized dramatically. They ease the shortage of skilled employees, require less storage space, and lend themselves to precise inventory control. Exact cost control, elimination of storage and shrinkage, and ease of menu planning are three other advantages. In addition, frozen portion-control meats eliminate the need for costly boning, cutting, and trimming equipment. Problems of spoilage, flavor loss, shortness of supply, and market fluctuations are minimized. There is no doubt that these advantages make portion-control frozen meats profitable. Packers see a bright future for their frozen products among institutions as well as on the general consumer level.

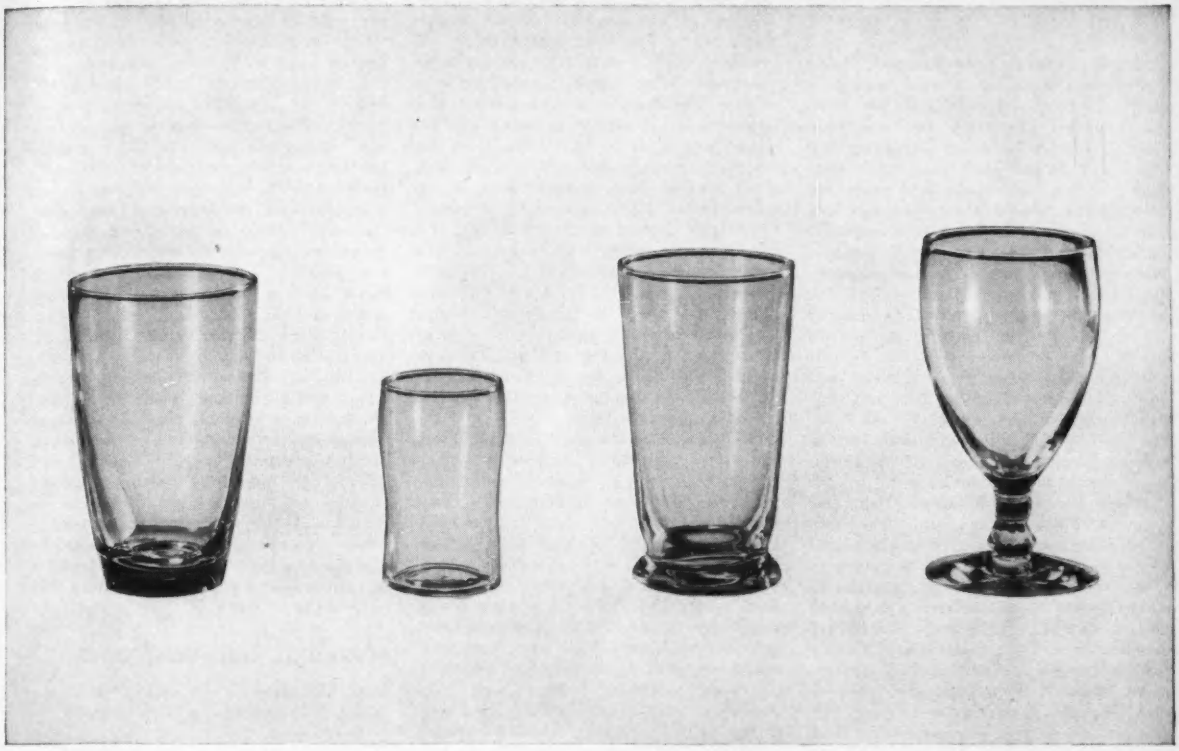
Frozen Vegetables Save Space, Time. Here is a run down on some of the well-recognized factors that make frozen vegetables and fruits popular in the restaurant and institutional kitchen. Frozen fruits and vegetables enable the chef to offer his patrons the taste, texture, and nutritional value of fresh vegetables and fruits all year round, while he himself is benefiting from their many conveniences. Storage space is saved, costs can be figured accurately, waste is eliminated, and work is saved on preparation. As the quest for quality continues and the shortage of time and labor increases, more and more institutions have been turning to these frozen products. The charts which accompany this article show cost per pound of portion sizes, approximate number of servings per package, and the nutritional composition of many frozen foods.

Easy-Preparation Guide for Frozen Meat. Cooking of frozen meats, like the cooking of any food, should follow a definite pattern and not be left to guess work. The thickness of frozen steaks and chops determines the time needed for broiling. Steaks 1 in. thick and under should be cooked from the frozen state. Steaks more than 1 in. thick but less than 1½ in. may be cooked from either the thawed or frozen state. Steaks more than 1½ in. thick must be cooked from the thawed state. Never thaw steaks in water unless enclosed in a plastic bag. You can thaw steaks in their original 10-lb. fiber container within 48 hr. when refrigerated at 30°F, and within 8 hr. at room temperature. The same steak may be thawed in 12 to 18 hr. in the refrigerator if removed from the container and in 2½ to 3 hr. at room temperature. Enclosed in a plastic bag, a steak may be thawed under running, tepid water in 48 min. Cooking steaks is easy if you remember that the total weight of the steak is unimportant. What is important is the thickness. The thicker the steak, the farther from the flame it should be cooked, and the longer it should be cooked at low temperatures so that the center can be thawed before the surface is finished. Fifteen to 20 min. are required for each pound of roasting meat in the frozen state. Temperatures should be low, around 300° to 325°F. Frozen poultry parts require 2 min. more cooking time than non-frozen parts, in deep-fat-frying conditions. Frying should take place at temperatures of 325°F. Complete charts for steaks and frozen, thawed meats and poultry cookery are printed with the article.

RESTAURANT MANAGEMENT

Vol. 80, June, 1957

* Look before you lease! P. Lockwood.—p. 51.
* 'More for your money.' A. Easton.—p. 52.



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One third of your present supply of glass and chinaware will be broken before the end of 1957. The tab for this breakage will run you, and the rest of the mass feeding industry, about $40 million; a pretty good sized tab.

However, you can drastically reduce your share of this $40 million simply by installing a low cost Sani-Stack Wire Rack System. Here's how it figures:

Excessive, unnecessary handling does the damage. In an average operation, soiled glass and chinaware is handled seven times before being put back in use. Sani-Stack eliminates this abusive handling. In the entire use-wash-use cycle, glass or chinaware is handled but two times by human hands. For many operators, this alone has reduced breakage by 50%.

Your local Sani-Stack dealer stocks a great variety of racks, he will be pleased to recommend the most efficient Sani-Stack Wire Rack System for your particular operation. Why not consult him today.

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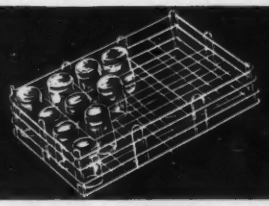

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Vol. 51, July, 1957
Using leftovers in entrées—II. M. L. Casteen.—p. 40.

Look Before You Lease. "Look before you lease" is a good maxim to keep in mind if you want to be a successful manager. The lease that was good last year may be a profit-robber this year, just as the lease that looks good now may be a millstone next year. Before signing a lease, the following seven questions should be considered carefully and answered: (a) Have you carefully considered all types of lease agreements? (b) Have you carefully checked the various types of percentage leases? (c) Does the lease contain an option to buy the property at a fair figure? (d) Does the lease have definite provisions for handling repairs and improvements of the property? (e) Does the lease have definite provisions for the termination of the lease? All the provisions should be in your lease.

More for Your Money. Milk and dairy products, chicken, and turkey can be profitable when featured on the menu. These foods give more for the money in nutritive value, and they can bring in more profits if attractively presented and promoted. Cheese with hamburger is an example of the utilization of a dairy product; or why not milk with the afternoon snack? Milk with the meal is also desirable and the restaurant can recommend it and suggest coffee with dessert. Dishes which offer more for the money are often based on turkey and chicken—two foods that combine easily and interestingly with milk and cheese. Recipes for chicken custard and recommendations for the preparation of creamed turkey au gratin are given as examples. Other recipes, including a low-calorie luncheon salad and peach trifle, appear to be delicious on paper, and no doubt are in fact. In addition, if the nutritionists are correct they yield more good health per portion than many other foods. Milk and dairy products have long proved their popularity and by inference their easily promotable good qualities. Recipes for English custards, trifles, and French and Italian cremes have been in existence for over two hundred years, and delicious variations on them exist today. Finally, there is a great surplus of dairy products in the U. S. and this surplus can be utilized profitably, now.

Using Leftovers in Entrées. Here are more suggestions on how to create entrées that are both flavorful and colorful using leftover meat, poultry, and fish. Roast beef hash and corned beef hash are popular luncheon entrées that should be made with equal quantities of chopped beef and potatoes. Skillet hash is suitable for restaurants doing short-order business. Other meat entrées include: scalloped ham and potatoes, using one part diced ham to two parts potatoes; scalloped dried beef and potatoes, using dried beef shredded and mixed with potatoes; scalloped roast beef with rice, using seasoned cooked rice and chopped roast beef in alternating layers covered with stewed tomatoes. Potato cakes are the easiest way to use leftover mashed potatoes; puffs are a lighter, fluffier mixture made by adding beaten eggs to seasoned mashed potatoes. Fish cakes and puffs are also delicious, as are puffs made with veal. Shepherd's pie and potato turbate are also good entrées. Another popular luncheon entrée consists of croquettes made with chicken, ham, and egg served with a tasty sauce or creamed vegetable. Cooked rice may be used in any kind of croquette mixture to extend the meat and poultry. Be sure not to overlook the utilization of leftover meats, poultry, or fish as fillings for baked, stuffed vegetables. And, in the salad department, many leftover cooked meats and poultry can also be used to advantage. A chef's salad using julienne pieces of cooked chicken or a tropical meat salad using cooked diced veal or lamb or ham, diced bananas, pineapple and celery, will always be popular. Leftover meats, chicken, fish, eggs, cheese, or vegetables may always be made into innumerable kinds of sandwich fillings. The casserole dishes rate a word also; they offer perhaps one of the best ways of putting good leftover foods to work.

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First compounded in 1857, JULLICUM has been developed by professional pharmacists and improved throughout 100 years.

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SCHOOL LUNCH JOURNAL

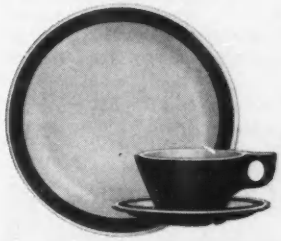
Vol. 11, June, 1957
* Here's how to select and use refrigerators. E. M. Cushman.—p. 8.

How to Select and Use Refrigerators. If the potential meal service is more than 50 to 75 lunches, a commercial-size refrigerator of the reach-in or walk-in type should be purchased for the school lunch program. In considering size, allow 15 to 20 cu. ft. per 100 complete meals. For programs serving over 300 to 350 complete lunches daily, a walk-in refrigerator is most economical. A walk-in should be supplemented, however, with one or more reach-ins, depending on the size of the meal load and departmentalization of food production. A recommended size for frozen food storage is 15 to 20 cu. ft. per 100 complete meals. One cubic foot will hold about 30 to 35 lb. Upright freezers are recommended as taking up less floor area and being easier to unload. In buying a refrigerator, consider the following construction features: capacity (buy net capacity), exterior and interior finishes, insulation (at least 3 in. thick, vermin proof), doors (full-length are recommended), hardware, seams, shelves, blower, drains, compressors. To insure the refrigerator's efficient use, be sure to open doors only when necessary and use the same general area of the refrigerator for storage of specific foods. Bring older foods toward the front so they will be used first. Be sure that different types of food are covered properly and stored in the refrigerator only when properly cooled (in the case of hot foods). Keep food away from walls and off the floor of the walk-in by using floor racks or dollies with ball-bearing wheels. Use temperature and humidity guides to check the efficiency of your refrigerator and freezer. Locate equipment in the coolest part of the kitchen.

Would you dare do this with the dinnerware you're now using?

You would if it were new De Luxe REGAL WARE

Regal Ware will save you 53% or more in replacement costs every year because it's hard to chip, crack or break melamine. It's quiet . . . durable . . . will outlast ordinary dinnerware year after year. Service is faster because Regal Ware is light . . . easy to carry, wash and stack. All pieces have heavy duty rolled edges and the self-draining contour base . . . the most sanitary base available. It washes easier, dries faster . . . and there are no sharp angles or edges for food and dirt to cling to. Regal Ware De Luxe is entirely new and so beautiful it will fit in the most luxurious settings. De Luxe is made by an *exclusive* "Color-on-Color" process of bonding two colors into a single piece.



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Honors to A.D.A. Members. One of three 1957 winners of the U. S. Department of Agriculture's Distinguished Service Award is *Dr. Callie Mae Coons*, Chief, Human Nutrition Research Branch. Dr. Coons, who has been a member of the JOURNAL Board and of the Investigation Committee, was cited for her "leadership in national research leading to basic findings invaluable to the U.S.D.A. and others in the furtherance of our national nutritional health." Presentation of the award was made on May 21 by Secretary Ezra Taft Benson at the Tenth Annual Honor Awards Ceremony of the Department of Agriculture.

A new honor has come to *Grace Bulman*, Chief, Dietetic Division, Department of Medicine and Surgery, Veterans Administration, Washington, and Past-President of A.D.A. On June 15, 1957, Drexel Institute of Technology conferred on Miss Bulman the honorary degree of Doctor of Science. The Institute cited Miss Bulman as a "distinguished dietitian, administrator, and public servant" who has "brought honor upon herself and upon the profession in which she devotedly serves her country."

American Dietitian Speaks to Japanese. Major Frances G. Ballentine, USAF (MSpC), Tachikowa Air Force Base, Japan, recently was the first foreigner to address a meeting of the Japan Nutritionists Association. At a meeting in Kyoritsu Kodo, Kanda, Tokyo, Major Ballentine spoke to an audience of some 2500 people from all parts of Japan. Her speech, delivered in English and translated by an interpreter, commended the nutritionists on the progress they have made in raising the nutritional level of Japan. The Japan Nutritionists Association is the counterpart of The American Dietetic Association.

Plentiful Foods MONTHLY LIST

The U.S.D.A. expects the following foods to be in plentiful supply during September:

Protein foods

Chickens—broilers and fryers
Fish—fresh and frozen
Milk
Turkeys

Other foods

Pears, Bartlett
Peas, dry
Summer vegetables
Vegetables fats and oils

Institute in Connecticut. September 9 to 13 are the dates for an Institute for Improved Dietary Administration in Storrs, Connecticut, to be co-sponsored for dietitians and food service managers by the Connecticut Hospital and Dietetic Associations. The five-day program will cover such topics as:

"Good Food Standards—How Do We Attain Them?"
"New Food Products"
"Food Purchasing—Fresh and Frozen Fruits and Vegetables and Meats"
"Planning and Remodeling Dietary Facilities"
"Equipment—How to Select It"
"Costs Can Be Controlled"
"How to Make a Job Easier"
"Training—Planning, Organizing, and Directing the Work of Others"

A.D.A. members who will participate in the program include: Mildred Hearn Mead, Alice Eaton, Dr. Doris Johnson, Lucille Refshauge, Bertha Nettleton, Esther Woodruff, Louise Esch, and Elizabeth Perry. Dr. Albert W. Snoke, President of the American Hospital Association, will present certificates to those attending at the end of the week.

Mail Course for Food Service Supervisors. An extension course by mail for hospital food service supervisors will be offered this year by the Pennsylvania State University Extension Service. Sponsors of the course will be the Hospital Association of Pennsylvania and the Pennsylvania Dietetic Association.

The course will be open to high school graduates in any state with supervisory ability and an interest in food preparation. Applicants must be employed in an accredited hospital, or the hospital must be a member of the state hospital association with an acceptable dietary department operated under an A.D.A. member.

Trainees will be employed as members of dietary departments during a one-year period of training. The correspondence lessons will cover the following subjects: nutrition, quantity food preparation, food service to patient and personnel, and office routine and supervisory techniques. On-the-job training will include: two months' orientation; three months' food production; four months' food service; six weeks' office routine; and six weeks' supervisory techniques.

Interns Graduate. On July 25, seven dietetic interns at *Cook County School of Nursing*, Chicago, received certificates and A.D.A. pins as the climax of their year's internship. The graduates were addressed by Anna Boller Beach, Presbyterian Hospital Chicago, who spoke on "The Flower Blooms," carrying out the gardening theme of the program. The graduates are:

Joyce Boyd, Lincoln University, Jefferson City, Missouri
Barbara Coffey, Rosary College, River Forest, Illinois
Ann Duginsky, College of St. Teresa, Winona, Minnesota
Martha Hoag, Framingham (Mass.) State Teachers College
Arlene Huddleston, University of Illinois Urbana
Barbara Lynch, Florida State University, Tallahassee
Clemmie Saxton, Texas Southern University, Houston

At *Ancker Hospital*, St. Paul, four dietetic interns also completed their year's course in July, receiving diplomas and Ancker Hospital pins from Dr. Thomas E. Broadie, Superintendent, and Winifred Howard Erickson, Director of Dietetics. The Ancker graduates are:

Angela Clark, Briar Cliff College, Sioux City, Iowa
Joanne Habinck, Briar Cliff College, Sioux City, Iowa
Pauline Lau, Western College, Oxford, Ohio
Joan Solberg, North Dakota Agricultural College, Fargo.

U.S.D.A. Consumption Survey. Three additional parts of the U.S.D.A. Household Food Consumption Survey 1955 have been released: *Dietary Levels of Households in the Northeast* (Report No. 7); *Dietary Levels of Households in the North Central Region* (Report No. 8); and *Dietary Levels of Households in the South* (Report No. 9). In these reports, nutritive value of food supplies in the households in these three regions is reported in more detail than in Report No. 6, *Dietary Levels of Households in the United States* which covered the country as a whole.

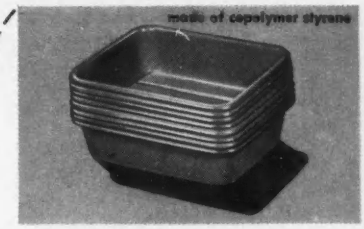
In the Northeast, the thiamine content of family diets was of particular interest. Only 78 per cent of the families—the smallest percentage in any region in the nation—had diets that provided the recommended allowances for thiamine. In this area, families eat less of such thiamine-rich foods as pork, whole grain or enriched grain products, and dry beans and peas than in other regions. Household food supplies in the Northeast also provided smaller amounts of fats, oils, and sweets—and contained less calories per person—than in the nation as a whole. As in all the regions, calcium was the nutrient most often short.

Household dietary levels in the North Central region closely parallel diets in the U. S. as a whole, with the nutrients most likely to be below recommendations being calcium and ascorbic acid, followed by riboflavin, thiamine, and vitamin A. With one-seventh of the households in this region located on farms, home-produced food was an important factor in the family diets. Home-produced foods for farm families provided almost 50 per cent of their calcium and riboflavin and at least 30 per cent of the other six nutrients studied.

In the South, family diets have shown great improvement over the past twenty years. In 1936, 40 per cent of southern diets were classed as poor compared with only 20 per cent in 1955. Dietary levels were lower in the South in 1955 than in the U. S. as a whole, with the nutrients most often below the allowances being: ascorbic acid, calcium, vitamin A, and riboflavin, in that order. This is attributed to the fact that southern families use less milk, milk products, meat, poultry, and fish, and fruits and vege-

3 money savers

. . . to simplify serving
. . . speed cleanup
. . . stop breakage



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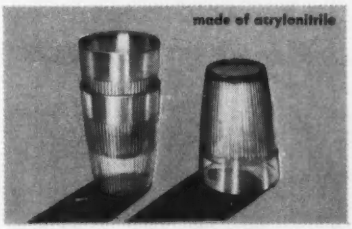

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tables. The lower dietary levels of the South were influenced by the large low-income group in this region. The diets of high-income southern families living in cities contained nutrient levels similar to those of high-income city people in other regions.

Single copies of each of these three reports may be obtained on request from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Glossary of Food Terms. To aid professional persons giving service to people of various nationalities who speak different languages, a "Glossary of Food Terms" has been compiled in which a list of foods is given in five languages: Italian, Polish, Slovak, Yiddish, and English. Foods are grouped according to: milk and milk products; fruits; vegetables; bread and cereal; meat, fish, and eggs; fats; and miscellaneous foods. In addition, measures are listed, as are such miscellaneous descriptive terms as "baked," "strained," "mashed," and "frozen," and so on. One page is devoted to food habits and preferences of each nationality group, with suggestions as to foods to emphasize in dealing with each. Prepared by the Nutrition Council, Health and Welfare Federation of Allegheny County, 200 Ross Street, Pittsburgh 19, Pennsylvania, single copies may be ordered from that office for 25 cents each.

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Meetings. The *American Hospital Association* will hold its annual meeting September 30 through October 3 in Atlantic City.

October 31 to November 2 are the dates of the annual convention of the *National Society for Crippled Children and Adults* to be held in Chicago.

Cleveland will be the scene of the 85th Annual Meeting of the *American Public Health Association*, November 11 to 15.

Symposium on Diabetes. "Recent Developments in Diabetes Mellitus" (pathology, diagnosis, and therapy) will be the subject of a symposium in Chicago on November 20 sponsored by the Chicago Diabetes Association. The program to be presented will be:

"Pathology of Diabetes Mellitus in Man"—Aaron Arkin, M.D., University of Illinois College of Medicine, Chicago
"Metabolic Derangements in Diabetes Mellitus"—Rachmiel Levine, M.D., Chairman, Department of Medicine, Michael Reese Hospital, Chicago
"The Metabolism on I^{131}-Labeled Insulin"—Solomon A. Berson, M.D., and Rosalyn S. Yalow, M.D., Radioisotype Service, VA Hospital, New York
"Insulin Resistance"—Arthur R. Colwell, M.D., Northwestern University Medical School, Chicago
"Oral Hypoglycemic Agents in the Treatment of Diabetes"—Alexander Marble, M.D., Joslin Clinic, Boston
"Current Concepts of the Pathogenesis of Diabetic Retinopathy"—David A. Rosen, M.D., Kingston General Hospital, Kingston, Ontario
"Diabetic Nephropathy"—Robert M. Kark, M.D., University of Illinois College of Medicine, Chicago
"Juvenile Diabetes"—Howard S. Traisman, M.D., Northwestern University Medical School, Chicago.

Bibliography on Aging. "References on Aging for Health Personnel" contains a fifteen-page annotated bibliography of periodical articles and a four-page list of selected books and pamphlets on aging. The various articles listed are divided according to subject matter, such as: employment, retirement, and income; living arrangements; physical health; mental health; institutional facilities and care; leisure time; and community responsibilities and planning. Prepared by nursing and nutrition consultants of the Chronic Disease Program, Division of Special Health Services, Public Health Service, Washington 25, D. C., single copies or limited quantities are available on request from that office. The request should state the title.

Booklet for Handicapped. Three chapters of the newly revised edition of *Handbook for One-Handers* will be of special interest to dietitians helping handicapped patients. One pertains to "Preparing Meals," another to "Eating Meals," and the third to "Household Hints." This fifty-five-page publication is designed to provide the one-handed amputee with down-to-earth information on how to carry on daily activities in a

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A NEW classroom sound-filmstrip!

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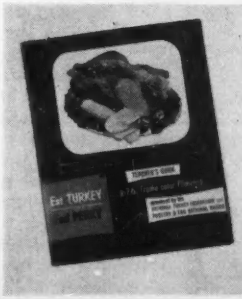
NATIONAL TURKEY FEDERATION Mount Morris, Illinois



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normal environment. Line drawings show "how it is done," supplementing an easy-to-read text. Copies may be ordered from the Federation of the Handicapped, 211 West 14th Street, New York 11, at a cost of 50 cents a copy.

Fluoridation Booklet for Laymen. In "Water Fluoridation: Facts, not Myths" by Dr. Louis I. Dublin, Institute of Life Insurance, the prediction is made that opposition to water fluoridation "will disappear like a bad dream once citizens make it their business to learn the facts." This booklet, Public Affairs Pamphlet No. 251, points out the savings that a community can effect through water fluoridation and spotlights the political, prejudicial, and pseudo-scientific arguments used by opponents of water fluoridation. The booklet may be ordered from Public Affairs Committee, 22 East 38th Street, New York 16, for 25 cents a copy.

News of State Associations

Alaska Dietetic Association. An organizing meeting for the Alaska Dietetic Association was held on June 29 in Anchorage, with thirteen members in attendance. The guest speaker of the occasion was Wilmer C. Carle, Instructor in History, Anchorage Community College and Anchorage High School, who talked on Alaskan history as he sees it after extensive travelling in the Territory on a Ford Foundation scholarship.

Officers of the Alaska Association are: President, LaVerle Fehling, Anchorage; Vice-President, Nellie DeKalb Wolfe, Spenard; Secretary, Mrs. Alan Hutchinson, Anchorage; and Treasurer, Rubye Matrye Lawson, Anchorage.

New York State Dietetic Association. The following officers will serve the New York State Dietetic Association in 1957–58; President, Elizabeth Casey, Solvay; President-Elect, Helen C. Ingerson, Eastman Kodak Company, Rochester; Secretary, Margaret Grainey, Genesee Hospital, Rochester; and Treasurer, Helen Cassidy, St. Luke's Hospital, New York City.

Ohio Dietetic Association. Officers for 1957–58 for the Ohio Dietetic Association will be: President, Janet Bryan, Cincinnati; President-Elect, Izola Williams, Ohio Department of Health, Columbus; Secretary, Margaret M. Hinkle, Columbus Receiving Hospital and State Institute of Psychiatry, Columbus; and Treasurer, Ruth B. Laidig, University Hospital, Cleveland.

Virginia Dietetic Association. One of the Community Nutrition projects of the Virginia Dietetic Association this year has been the preparation of an exhibit of seventeenth century foods in Virginia. The exhibit, first shown at the annual meeting of the American Association of the History of Medicine in Richmond in May, will remain on display until October in the Richmond Academy of Medicine building so that visitors to the Jamestown Festival may have an opportunity to see it. A booklet, "Interesting Facts about Virginia Foods—1607–1700," was also prepared and distributed widely in conjunction with the exhibit.

The exhibit depicts first the starvation period of 1608–10, when most historians agree that "poor dyet" caused the death of hundreds of the early settlers. Although there was an abundance of wild life and seafood, the people were too weak even to hunt or fish. Beriberi and scurvy are mentioned as being rampant. The diet during these years consisted only of roots, nuts, herbs, parched corn, and barley. To point up this meager diet, the exhibit shows a table, such as those used at Jamestown, standing on a dirt floor littered with oyster shells. The walls are painted to resemble the thatched huts made of mud and straw which were typical of Jamestown of that period.

A second part of the exhibit shows conditions in the middle of the seventeenth century somewhat improved. Pioneers had learned to grow grains and vegetables, had planted fruit trees, had imported livestock and chickens. A third section points out, in contrast, the abundance of the end of the century, when hams, all sorts of fruits, butter, cheese, and vegetables were in abundance.

The exhibit and publication of the booklet were done with the aid of the Dairy Council of Richmond.

Designed for THE SCHOOL KITCHEN

A complete nutritious menu from just one

Market Forge *Combination Unit*

A check of the type A school lunches in the U.S. Dept. of Agriculture file #PA 271 has shown that the majority of the foods that require cooking may be cooked faster, better, easier in a combination unit. No more hot range-top cooking — no more pots and pans that need scouring and are heavy to lift — no more hot surfaces and stuffy kitchens.

STEAM COOKER for vegetables — meats — poultry — sea food — pre-cooking — frozen foods — reheating.

Plus a STEAM KETTLE for soups — stews — gravies — casseroles — spaghetti — sauces.

- SAFEST PIECE OF COOKING EQUIPMENT AVAILABLE.
- Low working height of kettle — ideal for ladling foods.
- Swinging pantry faucet for easy filling of kettle.
- One heavy duty trouble-free tubeless boiler.
- One set of connections — simple to install.
- Built-in drain collects condensate to one common point.

Send today for the new file folder containing detailed specifications so your architect may plan for you the most modern and efficient school kitchen.

Manufacturers of the most complete line of steam cooking equipment.

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Meal Test Proves*

MELMAC®

cuts Breakage 71.1%

*This one-year test, conducted in a leading restaurant, proves conclusively that beautiful, break-resistant MELMAC quality melamine dinnerware—

SLASHES REPLACEMENT COSTS—BIG savings year after year. Chip resistant, fadeproof, rugged. Takes fast stacking, racking, washing—bounces back smiling.

REDUCES CLATTER—Cushions nerve-jangling noise. Sound-conditions dining room areas!

WEIGHS ⅓ *LESS*—SAVES ACHING BACKS—Keeps serving people, bus boys, kitchen help smiling!

PUTS BEAUTY ON YOUR TABLES—New colors, patterns, shapes . . . perk up appetites!

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Melmac is sold under individual manufacturers' brand names . . . ask your supplier of Arrowhead, Boontonware, Cloverlane, Dallasware, Hemcoware, Lifetime Ware, Prolon and Restraware.

Association Activities

40th A.D.A. Annual Meeting. Plan to attend the business meeting of the Association on Tuesday afternoon, October 22, during the Annual Meeting in Miami. Reports of pertinent interest to the membership will be presented.

Combating Food Misinformation. The recent A.D.A. booklet, *"Food Facts Talk Back—Food Information—Fallacies and Facts,"* mentioned in the June JOURNAL is much in demand. It has supplied material for future articles to appear in some of the country's leading newspapers.

Divided into three major sections, the 121 current fallacies, in question and answer form, are refuted specifically and authoritatively. Every member will want this booklet and will also want to publicize it widely for distribution to allied groups, libraries, newspapers, radio, and television. The thirty-two-page booklet may be obtained from Headquarters office at the following prices:

50 cents per copy
$2.25 for 5 copies
$4.00 for 10 copies
$17.50 for 50 copies

A.D.A. Representatives. Alberta Hughes, Drexel Institute of Technology, was our official representative at the Centennial Convocation of the *National Education Association* in Philadelphia, July 3. "An Educated People Moves Freedom Forward" was the theme of the meeting.

Gladys E. Hall, University Hospital, University of Maryland, represented our Association at the *Twelfth National Conference on Citizenship* in Washington, D. C., September 16 to 18.

Publications Available. Speaking of our profession, are you acquainted with the following publications about our profession and Association which are available from Headquarters office?

"The Profession of Dietetics"—price 25 cents; a compilation of the following articles reprinted from our JOURNAL: "Professional Leadership" by E. Neige Todhunter, Ph.D., January 1952; "Dietetics from the Mountain Top" by E. Neige Todhunter, Ph.D., March, 1950; and "The Profession of Dietetics" by R. M. Wilder, M.D., July 1950

"The Story of the Dietitian in the United States," a leaflet relating history and growth of the profession —25 cents each

"Organization of The American Dietetic Association" (chart)—5 cents each

"Division of Responsibilities as Defined in the Constitution of The American Dietetic Association" (chart)—5 cents each

"About The American Dietetic Association," a leaflet concerning the Association—5 cents each; lots of 25, $1; lots of 50, $2.

"A Glimpse of The American Dietetic Association," a leaflet describing the organization and services of the Association—25 cents

Have you studied the July 1957 issue of the JOURNAL? It will give you a broad, present-day picture of our profession.

Have you seen the latest Career Guidance material of the Association? A kit priced at 25 cents and containing selected pamphlets will be sent to you from Headquarters office on receipt of stamps or cash.

Obituaries

Ann Gilchrist Strong. Word has been received from New Zealand of the recent death of Ann Gilchrist Strong, well known internationally for her work in nutrition and home economics. Professor Strong, a native of the U. S. and a pioneer in the field of home economics in this country, emigrated to New Zealand in 1921. Prior to that time, she had been Professor of Home Economics at the University of Tennessee and Director of the Home Economics Training School in Cincinnati, which became a department of the University of Cincinnati in 1914. In 1917, she went to Baroda, India, to organize a graduate course in home science at the University of Baroda. From there, she went to New Zealand, where she was appointed Professor of Household Arts at the University of Otago and remained. In this post she was influential in sending a number of gradu-

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COOKING WARE
BY LEGION

Wherever cooking is an art... skilled chefs insist on utensils that are good heat conductors that guard against corrosion and are easy to clean.

BI-METAL.... for the finest kitchens. A Scavullo patented process which prevents bulging, blistering or separating. Bi-Metal is 18-8 seamless drawn stainless steel inside with heavy gauge copper outside.

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COPPER

TRI-PLY..... for extra strong, heavy duty. Tri-Ply by Legion are utensils consisting of double plys of 20% stainless steel over a core of 60% mild steel. This is the material specified by the Army Medical Corps, U.S. Navy and Veterans Administration. Ideal cooking utensils for hospitals and institutions.

20% 18-8 STAINLESS
60% MILD STEEL
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FOUR-PLY... all Tri-Ply utensils are available with added copper bottoms. This fourth ply assures quicker, even distribution of heat over the cooking surface.

20% 18-8 STAINLESS
60% MILD STEEL
20% 18-8 STAINLESS
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For the finest in cooking ware—serving ware—buffet ware in copper, and stainless steel, specify LEGION.

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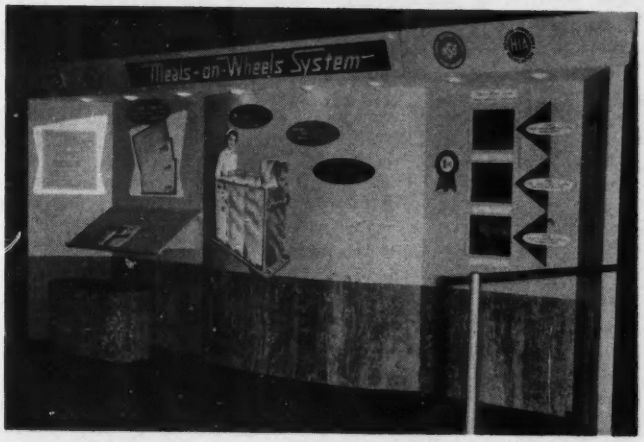
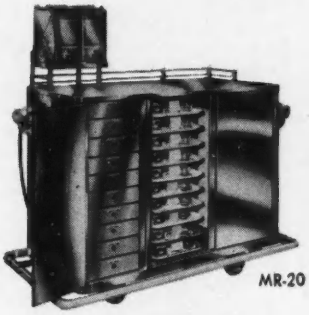
CHICAGO SAN FRANCISCO BEVERLY HILLS MIAMI BEACH

Visit our exhibit American Dietetic Association, October 22, 23, 24, Dinner Key Auditorium, Miami, Fla., Booth 604

SEE THEM AT THE SHOW

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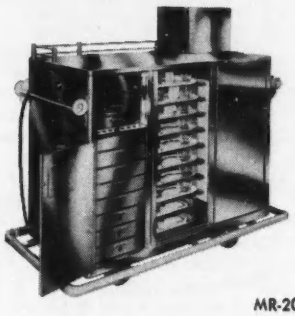
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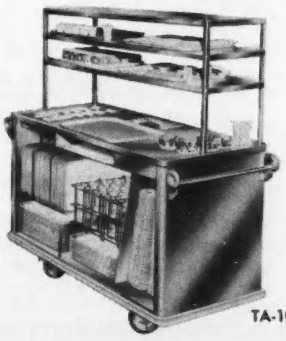
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Meals-on-Wheels System

can do for you

(now in use in over 300 hospitals throughout the country)

Learn how you can —

1. Provide correct food temperatures from kitchen to patient.
2. Economize by eliminating mealtime peaks.
3. Decrease supervision problems through greater simplicity and flexibility of operation (giving you more time for other duties).
4. Profit by using the only *complete* planning and follow-up service—The Meals-on-Wheels System!

Variable capacity available – 16 to 28 patients.

Your visit to Miami won't be complete without seeing our new exhibit Number 321

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ates to the U. S. for further training. With the formation of the New Zealand Home Economics Association in 1923, Professor Strong was made its first president, an office she held until 1932. She was also responsible for the establishment of the Home Science Extension Service in New Zealand in 1929, through a grant by the Carnegie Corporation to the University. On her was conferred the insignia of Officer of the British Empire in 1936, and she was recipient of a Coronation Medal in 1937. Since her retirement in 1941, she had lived in Dunedin, New Zealand. She was a member of A.D.A. from 1936 to 1944.

News of Products and Services

At the National Restaurant Show in Chicago in May, the *Hall China Company* introduced a new "Hot Pot"—a beverage server which nests conveniently in any restaurant-style tea or coffee cup. It is designed to save space, pre-heat the cup, prevent spillage, and keep the beverage hot from kitchen to consumer, and is available in twenty-six colors and two styles, each holding 9 oz.

An 18-min. sound film demonstrating *Koch Refrigerators'* Series "M" reach-in refrigerators has just been completed. By animated demonstration, it features the advantages of an integrated system of cold-food handling for mass feeding. The film is available for showing to schools and institutions.

Sunkist Growers has introduced an 18-oz. can of frozen lemonade, which will provide 1 gal. of ready-to-serve lemonade at a cost of less than 3 cents per 10-oz. glass. This richer concentrate having less weight will effect savings in shipping and handling. The new 18-oz. can, which provides a gallon of ready-to-serve lemonade, is also more convenient to handle than the older 32-oz. can which made 1 gal. plus 1 qt., a cumbersome quantity.

A booklet prepared by the *Liquefied Petroleum Gas Association* describing the role of LP-gas as a fuel for emergency health and food service installations is being distributed to 10,000 Civil Defense officials by the Federal Civil Defense Administration. Entitled "LP-Gas for Civil Defense," the booklet shows what LP-gas is and how it can provide cooking, sterilizing, heating, and similar essential services in times of civil disaster or military attack. Civil defense workers are shown how they can connect LP-gas containers to gas appliances and told where to look for supplies. A second booklet to show how dealers can cooperate with their local Civil Defense organizations is also planned.

Nu-Way Foods Company has a new line of Single Serv jellies, mustard, and ketchup to meet the growing demand for portion-control packets among all types of institutional food buyers. Other items to be added to the Single Serv line will include dressings, tartar sauce, sirup, and honey.

Milk-Foods, Inc., USA, is currently distributing a new line of powdered mixes to be used in making a number of "dips." The new M-F brand Instant Dip Mixes are packed in four popular flavors: garlic, bleu cheese, onion, and an "unflavored" mix for those wanting to add their own flavors, such as minced clams, chopped olives, horseradish, fruits, and so on. The mixes are packed in 2-lb. cans for institutional use and 2½-oz., double-Cellophane bags for home-makers.

Purchase and Use of Canned Foods is the title of a new, twenty-nine page, illustrated booklet prepared by the Home Economics Section, *American Can Company* for distribution to institutional food buyers and menu planners. It gives information in chart form on the number of servings per can, number of cans required per 100 servings, and cost per serving of approximately a hundred varieties and styles of the most commonly used canned foods. Other information, in the form of questions and answers, cover storage, perishability, and service of canned foods.

A new color filmstrip entitled, "Eat Turkey—Feel Perky," gives a report of the nutritional value of turkey as reported in recent research at Cornell University. Turkey is shown as being the highest in protein and the lowest in caloric content among popular poultry and red meats. Colorful and appetizing turkey dishes are presented. The film was produced by the *National Turkey*

You are looking through the THERMcCOLD Pass-Thru Cold Bank from the preparation area side. Bottom door opening illustrates the storing of an extra supply of milk cans close to milk dispenser in service area. Glass doors on top of cabinet for easy view of contents. Use of trays slides very important in labor saving in the Hot 'N Cold Food Bank principle.

NEW, SAFE WAY TO COOK AHEAD . . . SPEED UP FOOD SERVICE WITH

Today, kettles and ovens are placed near the THERMcCOLD Pass-Thru or Wall Type Hot 'N Cold Food Banks to give rapid service and a saving of walking time.

Cafeteria service area illustrating how THERMcCOLD Pass-Thru Hot 'N Cold Food Banks properly planned to bring step-saving "storage" between "preparation area" and "service area."

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THERMcCOLD®

HOT 'N COLD FOOD BANKS

It is now safe to cook ahead — keep hot foods HOT . . . cold foods COLD.

The proper kitchen layout is essential for the large or small hospital because effective location of fixtures can reduce labor costs through a saving of walking time, as well as number of employees.

THERMcCOLD Hot 'N Cold Food Banks either in Pass-Thru or Wall Bank models eliminate delays, confusion and lost motion in preparation areas. Accurate temperature controls protects bulk prepared foods for meal time.

For additional information on how you can benefit by installing THERMcCOLD equipment in your kitchen, ask your food service equipment consultant or write for facts: Address THERMcCOLD CORPORATION, Dept. JTH, Hudson, New York. * *T.M. Reg. U.S. Pat. Off.*

Qualified Technical Advisors Will be Present at
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WHICH RICE GIVES YOU MORE SERVINGS PER POUND?

It's Uncle Ben's

NOW AT A NEW LOW PRICE!
COSTS YOU LESS THAN TWO CENTS A SERVING

the rice that cooks up fluffier . . . goes further . . . looks and tastes better even after hours on the steam table!

EXCLUSIVE PROCESS makes Uncle Ben's extra fluffy . . . each grain cooks separate and tender. REHEATS EASILY—can be kept in your refrigerator for days. Stores safely—*guaranteed* weevil-proof! NO WASTE—you serve all you cook because it doesn't gum up or stick to pans. BETTER FOR YOUR CUSTOMERS. Exclusive process seals in the vitamins and minerals of the natural rice grain. Contains *twice* the natural B vitamins of ordinary rice!

★ NEW WAYS TO SERVE RICE
Send for FREE quantity recipe cards. Write Uncle Ben's Rice, P.O. Box 1752, Houston 1, Texas.

Uncle Ben's CONVERTED® LONG GRAIN RICE

Premium Coupon In Every Package!

Federation in co-operation with the Poultry and Egg National Board. It runs 14 min. on 35 mm film and is accompanied by a sound disc and illustrated printed commentary.

Basic nutrition information and practical meal planning ideas have been incorporated in a new booklet released by the *National Dairy Council*, "And She Does It So Easily and So Well." Prepared primarily for brides, career girls, and homemakers who wish to develop a flair and confidence in their cooking and serving of meals, the booklet presents many ideas for shopping and menu planning and includes several recipes and suggestions for shortcuts. One section deals with marketing and food buying, while another is concerned with the "artistry of food combinations."

The *National Dairy Council* is also releasing a series of three booklets correlated with social studies at the fourth and fifth grade level. Designed to incorporate information on new techniques used in dairy farming and food processing, the series was developed to help children increase their understanding of the complexity of their own communities and the U. S. Titles of the three booklets are: "Maybe I'll Be a Dairy Farmer"; "Maybe I'll Be an Ice Cream Maker"; and "Maybe I'll Be a Milkman." The first shows the farm, its activities, and the part it plays in community life in the corn and dairy belt across the nation. In the second, each step in making ice cream is shown in a picture of the floor plan of an ice cream plant. Processing and distributing operations are shown in the third booklet A supplement for the teacher has also been prepared for the booklet on dairy farming.

S. Blickman, Inc., is offering a new "Foodveyor," a cart featuring a quick change of tray slide racks which converts the equipment from 18- to 20-, to 22-, to 24-tray capacity. The basic Foodveyor is delivered with 4-in. spaced non-tilt tray slides to accommodate 18 trays. If a hospital's needs change, the racks are removed and replaced with 3⅝-in. spaced slides to accommodate 20 trays. Both a cold and heated compartment are included in the Foodveyor. The cold compartment can be regulated down to approximately 40°F., with an instantaneous blow-cooling system delivering cold faster than in a household refrigerator. The heated compartment contains eight drawers to accommodate three 9-in. plates and three bouillon cups each. Approximate size of the Foodveyor is 29½ by 72 in.; with 6-in. wheels, the working height is approximately 47 in. Eight-in. wheels are also available.

A new 12-min. color moving picture titled "Rice . . . The Most Important Food in the World" has been prepared by the *Rice Consumer Service*. A 16 mm. film, it presents a number of easy recipes using rice, as well as scenes showing how rice is grown in the U.S. All foods used are low in cost to show how rice may be combined for quick and easy dishes. The film is available for loan free of charge from the offices of Modern Talking Pictures Service, Inc., in New York, Chicago, Detroit, Los Angeles and Pittsburgh.

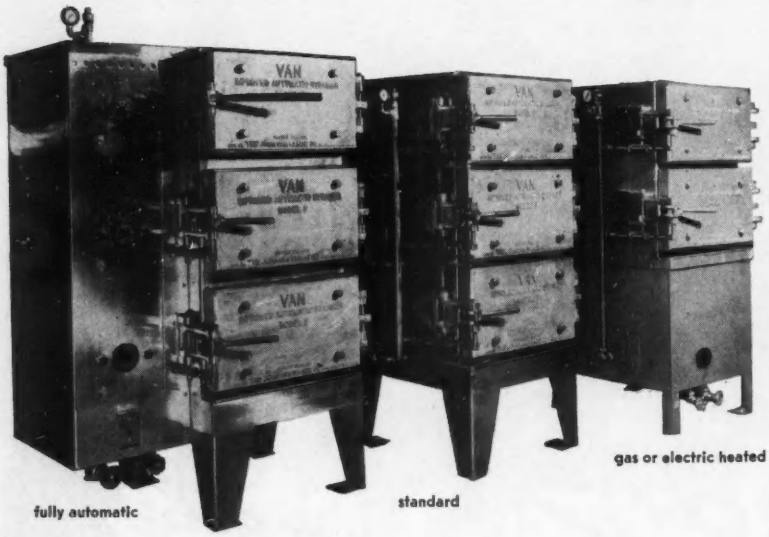
A new "Boileret" model coffee or tea urn with 2-, 4- and 8-gal. capacity and with an all-glass interior has been introduced by *Amcoin Corporation*. Controls are automatic. The exterior is constructed of corrosion-resistant monel, and the dispensing route connecting the liner to the body and the liner itself are made of heat-resistant Pyrex glass. This model is equipped with pressure relief valve and low water cut-off control.

Amcoin Corporation has also announced a new line of mass production coffee maker units in 20-, 30-, 50- and 100-gal. capacities which will provide for rapid delivery of large quantities of coffee at mass feeding operations.

Other news from *Amcoin* concerns the "Duet," a single unit that brews and dispenses iced tea or hot chocolate in bulk, with a claimed savings of 30 per cent or more. Just a change of faucets converts the iced tea urn into a hot chocolate urn. It will make up to 30-gal. tea in bulk per hour or will brew 4-gal. hot chocolate at a time and will keep it rich, smooth, and fresh for 6 hr. or more.

A fourth new unit from *Amcoin Corporation* is the "Low-Boy" model coffee brewing equipment, which is available in 2-, 4-, and 8-gal. capacities. It may be used with either steam or electricity.

An all-glass interior iced tea dispenser has also been added to the line of all-glass-interior coffee urns of *Amcoin Corporation*. It features a Pyrex glass liner,



explore how you can save via Van controlled steam cooking

★ Cooking in Van steamers preserves essential vital minerals and food values ordinarily lost in other methods of cooking. Steam cooking reduces shrinkage, seals the juices in the food, and preserves the vitamins that are lost by boiling or cooking on the range top. The cost of cooking by steam is far less than that of gas, oil, coal, electricity.

★ Cookers are available made of various metals and sizes designed for pressure and non-pressure cooking and for direct steam, gas fired or electric heating. The models illustrated are only three of many available.

★ Write for *Bulletin Sa* and *Time Table* for controlled steam cooking of 81 foods.

The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

Branches in Principal Cities

341 EGGLESTON AVENUE **CINCINNATI 2, OHIO**

Coffee with PREAM is good . . . and hot!

Sanitary PREAM Packets cost less per serving than cream — more economical than half-and-half!

Creaming hot drinks with cold liquid cream can quickly make them lukewarm and unappetizing to your patients.

But modern hospitals — like the major airlines—have learned how to serve a steaming hot, deliciously-creamed cup of coffee every time. They use ever-fresh PREAM, in individual packets, wherever cream is desired.

PREAM dissolves instantly and adds rich cream flavor . . . *but doesn't cool off hot drinks!* Hospital patients appreciate the fact that Pream won't spill, won't spoil. It's a 100% pure dairy product, pasteurized and homogenized, but keeps indefinitely *without refrigeration.*

PREAM Packets save your food budget dollars and help your kitchen run smoother. They are light, easy to store, and completely eliminate the washing, sterilizing (and breakage) of pitchers and creamers.

Send today for a sample box of individual PREAM Packets. Try PREAM, and see how your patients appreciate really good, really *hot* coffee.

Instant **PREAM**

Yes, I would like free samples of Pream Packets, to measure patient acceptance and serving economy.

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POSITION_____

HOSPITAL_____

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M & R Dietetic Laboratories, Inc., Columbus 16, Ohio

Pyrex glass dispensing route, and a Pyrex glass-lined dispensing faucet. The dispenser is available in 4- and 8-gal. capacities.

To eliminate unnecessary hand handling of trays in mass feeding establishments, *THERMcCOLD Corporation* has developed wall-type sectional hot and cold food banks into which loaded tray carts can be wheeled. Wheel-in application can be had on pass-through cabinets for those desiring doors on both sides. Exterior dial thermometers assure correct temperature.

Single-service plastic tumblers for hot and cold drinks at almost the same cost as that of paper hot cups are being offered by *Busse Plastics*. These tumblers are available in five colors in 7¼- and 9-oz. sizes. Made of 100 per cent plastic, the cups will not wilt or crumble and are tasteless and odorless.

To meet the need of limited space. *Champion Dishwashing Machine Company* has developed a single tank, upright conveyor model dishwashing machine having an 11 ft. 6 in. over-all length. Features of the new model are a patented conveyor belt with nylon links so constructed that no metal can touch or mark the dishes, final rinse diversion to reduce detergent consumption, and louvred extension doors to provide air circulation for rapid dish dryings. Capacity of this "U" model is 4500 to 6500 dishes per hour.

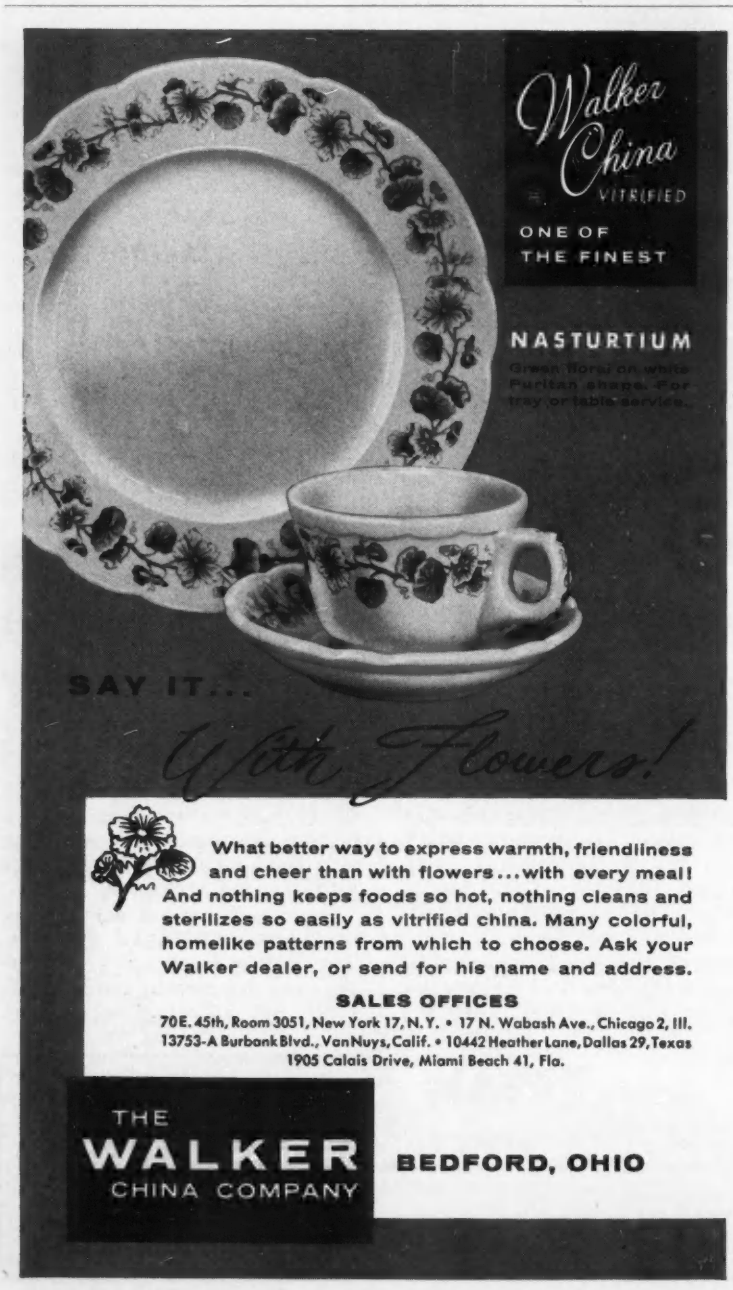
Downyflake's Serv-Pak Mustard is the newest addition for the line of the *Institutional Products Division* of *DCA Food Industries Inc.* The Downyflake mustard itself is of excellent quality, and the "Squeeze-Pak" is claimed to be the most functional mustard dispensing service yet marketed. The new Serv-Pak mustard features individual-service packages of mustard, which are torn across the top by the customer. No knife is needed for spreading, and unsanitary opened mustard jars are eliminated from counter or table. It will also be useful in the take-out and box-lunch trade.

Another new idea from Downyflake is the "Hawaiian Queen" cake, which is being introduced by the *Institutional Division, DCA Food Industries, Inc.*, a special feature of which is a complete "package," including all the ready-prepared ingredients: Downyflake White Cake Mix, Downyflake Pineapple Fruit Concentrate, and Downyflake New Cream Spread Icing Mix. The idea of using the white cake mix as the basis for a variety of cakes will be promoted, with suggestions for adding various fruit concentrates as the flavoring for both the cake and the icing. For example, an "orange jubilee" cake can be made with the Downyflake Orange Fruit Concentrate: and a "lemon royale," with the Downyflake Lemon Fruit Concentrate.

"Junket" Brand Foods has announced the appointment of Marian F. Kerin as Director of Home Economics. Miss Kerin will be the new "Mary Mason" of "Junket."

Two new nutrition publications distributed by the *National Live Stock and Meat Board* have been released. One, "Tots at the Table," is a food guide for parents' use with children one to five years old. Information on basic needs and a suggested guide to follow in meal planning to meet those needs was designed with the idea of providing an easy reference for parents. Key foods needed by children are listed with suggestions on how they may be served, tips as to what most children like, and hints about between-meal eating. Eating at the family table is discussed, as well as parties for the young ones—what and how to serve—and traveling with young children. The booklet is illustrated and in color. The second booklet "Eating for Your Baby-to-Be," prepared for pregnant women, offers helpful menus utilizing all necessary foods and points out the fallacy of "eating for two" by explaining what foods and how much the expectant mother needs every day. By judicious use of foods, weight can be controlled and the diet can contribute to the well-being of the mother-to-be. The booklet furnishes definitions of unfamiliar words likely to be used during this period and provides a score card to show whether the recommended amounts of food are being eaten.

Hotpoint Co.'s new Rocket Counter Kitchen is a combined unit of griddle, hotplate, deep-fat fryer, plus food warmer requiring only 86½ in. counter space. The Rocket 12X griddle has a capacity of 720 hamburgers per hour; the Rocket hotplate will bring 2 qt. water to a full boil from a cold start in 5.99 min. The Rocket deep-fat frying machine turns out 61 lb. or 313 servings of French fries from raw to done in 28 lb. fat. All are built for heavy duty commercial use.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ONE OF THE FINEST
NASTURTIUM
Green floral on white Puritan shape. For tray or table service.
SAY IT...
With Flowers!
What better way to express warmth, friendliness and cheer than with flowers...with every meal! And nothing keeps foods so hot, nothing cleans and sterilizes so easily as vitrified china. Many colorful, homelike patterns from which to choose. Ask your Walker dealer, or send for his name and address.
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THE WALKER CHINA COMPANY
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How can you *perk up their appetites?*

Patients are *people* and the way to the stomach is often as not through the eye, the mood, the spirit!

No matter how good, or how nourishing, or how *right* your food is, it may go untouched if it's served in routine or institutional manner.

Picture one of your trays with food posed against our flower-sprigged "Rose Linen" tray covers. It's a tonic just to look at it! Food looks better, tastes better, lifts the heart as well as the appetite. You may select from a wide variety of ready-to-order stock prints or we'll design one expressly for you . . . with your name on it.

You'll chart a wonderful upturn in appetites, you'll keep costs down and efficiency up when you use Milapaco disposable tray covers.

Save laundry: No linen, no laundry costs. Simply use and discard your Milapaco paper tray covers.

Save space and effort: No sorting, no folding, no counting, less storage space.

Save money: Actually less than half a cent apiece. Well under your linen and upkeep costs.

Sanitary and speedy: Each tray cover is immaculate to the moment you use it. Of strong, linen-textured paper . . . no sticking together. Flick them off lightning-quick!

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Samples? Of course . . . all you need do is fill in and mail the coupon. It will bring you samples and full information on stock and special print tray covers, doilies, and our famous wet-strength Belfast napkins (soft, snowy, and so sterile-pure many hospitals use them for instrument wrapping). We'll include samples and information on portion cups and our wet-strength, almost indestructible bath mats! No obligation, ever!

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Continuous loads of refrigerated foods will not kill the temperature. The Rocket food warmer features the convenience of either moist or dry operation and allows holding of foods from the lowest settings up to any required temperature. It takes standard-size pots, pans, and accessories. Of stainless steel, each device in the Rocket Counter Kitchen may be purchased separately. They are all designed to bank in any combination with the others.

Hotpoint is also offering a new hot food storage receptacle, Model HF5, which is easy to install and will provide faster pre-heating and heat transfer as well as a choice of "moist" or "dry" operation. Stepped-up power of 1500 watts permits the HF5 to preheat in 10 to 12 min., compared with 40 to 50 min. in conventional models. Made of one-piece anodized aluminum, pots and pans of the same metal are recommended for maximum efficiency, although stainless steel food containers can be used if desired.

A third new offering of *Hotpoint Co.* is an electric bake oven with fifteen different heat patterns within the oven at the turn of a switch. Each oven is independently controlled with its own thermostat and top and bottom heat-balance switches. Each contains a superspeed Calrod (R) heating unit in the top of the chamber. A second Calrod unit is located below the deck. Two heat-balance switches control the percentage of heat required independently from top and bottom units. When the oven reaches dialed heat, an automatic electricity saver turns off the current. When more heat is needed to retain temperature the current is automatically turned. These *Hotpoint* bake ovens are available in 2-pan, 4-pan, and 6-pan sizes. Up to three oven sections may be stacked for compact installation. Also in the *Hotpoint* bake oven line is a high-temperature pizza oven powered for 600°, and tested to turn out six 12-in. pizza pies per section every 5 min.

Pillsbury Mills, Inc. is now offering a new and improved waffle mix with "no stick" advantages. . . Also new from *Pillsbury* are the formulas for fruit-flavored toppings for use with the Pillsbury angel food cake mix, which include: strawberry whip, lemon parfait, raspberry frozen cream, and peach whip. These formulas are available on 5 by 8 in. cards for handy reference by food operators.

Pillsbury Mills, Inc. has also announced that nineteen mixes in its hotel and restaurant product line will now be available in 50-lb. packs, replacing all of the 25-lb. and most of the 100-lb. size products now being sold by Pillsbury to institutional outlets. The new pack combines the advantages of bulk size pricing and user convenience. All products will also be available in the regular 5-lb. packages.

Pointing out that kitchen equipment is a capital investment requiring proper care and maintenance to provide cleanliness and longer life, *Gas Consumers Service* has issued a booklet, "Care That Counts" which details instructions on the care of ovens, ranges, broilers, griddles, fryers, food warmers, coffee urns, steam cookers, and gas toasters. Formulas for cleaning solutions are given and tools for cleaning of all appliances are recommended. The first half of the booklet provides information on various types of hot water heater installation, with suggestions on how to estimate how much water will be needed in relation to the size of a particular restaurant operation (1.8 gal. hot water are needed per customer). Using this as a base, the estimate for the peak hours can be calculated and the necessary volume of water supplied. Two-temperature water is advocated by the National Sanitation Foundation for dishwashing standards—140°F. for the washing cycle and 180°F. for the sanitizing rinse. The relative values of a separate heater system or a booster system are discussed and shown in five figures and text.

Harlow C. Stahl Company now offers a new "bun 'n roast" pan combination which features three-way utility. With the cover on, it serves as a roaster; with cover off, it converts to an open top roast pan, while the cover itself is designed for use as a bun pan. Made of heavy duty aluminum for durability, lightness, and ease of handling, the pans are acid-, stain-, abrasion-, and corrosion-resistant. Other features include rounded corners and rolled edges. The roast pan size is 22 by 20 by 6½ in., while the bun pan measures 22 by 20 by 1¼ in.

Bombay orange and grapefruit bases are now being packed by *H. R. Nicholson Co.*, in No. 2½ cans, suitable for use by

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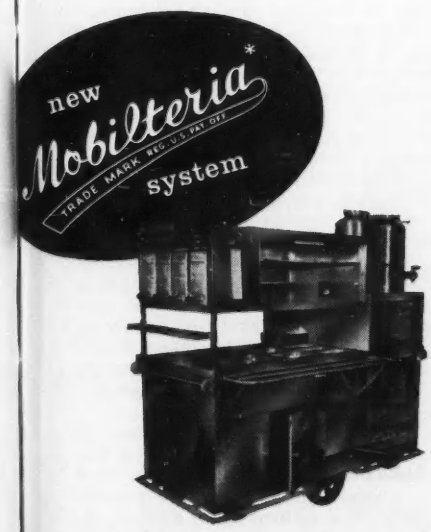
Mr. W. E. Arnold, administrator of St. Luke's Hospital in Jacksonville, Florida, was pleased to say after installation of the Mobilteria Service, "... service to the patient is much improved. We have realized a considerable saving in food cost and have made available to us six rooms used as floor kitchens under our previous methods."



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small restaurants, cafeterias, colleges, schools, and hospitals. A 4-oz. serving of Bombay orange purchased in the new 2½-size can is $0.0178; for grapefruit, the cost is $0.0175; for orange-and-grapefruit blend, it is $0.0177. The bases require no refrigeration and are reconstituted by simply mixing four to one with cold water.

Lakeside Mfg. Inc. has introduced stainless steel, clean-dish trucks in two different sizes for storing, carrying, and distributing dishes. The construction features double-strength uprights, extra braces at points of stress, reinforced dish shelf, and rugged, easy-rolling ball-bearing casters. The "Store'n'Carry" dish trucks are loaded and unloaded from one side only. Dividers are omitted so that any size or combination of dishes can be easily handled.

An enticing array of sandwiches in all shapes, sizes, and colors is displayed in "Turn to Sandwiches," a twenty-page booklet in color, the newest publication of the *American Institute of Baking*. By varying the bread, the fillings, or both, an infinite number of sandwich combinations can be made. There are recipes for salad-type and hot fillings as well as other sandwiches adaptable to any meal pattern. Breakfast sandwiches of cinnamon toast and applesauce or bacon-marmalade rolls are two of the many suggestions for unusual service of sandwiches. Sandwich arrangements and cutting cues shown on the last page complete the booklet.

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Cream of Rice is rich in iron plus Vitamins B_1, B_2, and Niacin.

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A new three-compartment self-generating Steam-Chef steam cooker is being offered by *Cleveland Range Company*. Occupying 10 sq. ft. and 67 in. tall, it has a self-contained boiler for rapid generation of steam. Users have the choice of either electric or gas-fired models. Other features include side-by-side arrangements of pans or baskets for easier loading, unloading, and inspection; and exteriors of either stainless steel or baked enamel. This unit is recommended for kitchens serving 700 meals an hour. It will accommodate eighteen standard 12 by 20 in. cafeteria pans.

Anco boned chicken has been added to the other Anco products of *L. L. Antle & Co., Inc.* The chicken is a U. S. government inspected product containing all the white and dark meat of young chickens packed in a broth in 2-lb., 3-oz. cans. It can be used for chicken fricassee, salad, sandwiches, pot pie, and other chicken dishes.

U. S. Slicing Machine Company, Inc. has introduced a new Model GR Slicing Machine. This model has a horizontal type of feed and an improved pressure feeding mechanism which holds products firmly and feeds to the knife with a controlled gentleness making it unnecessary for an operator to feed products to the knife by hand. All parts of the machine in contact with food being sliced are ribbed to reduce friction and assure firm positioning. Nylon rollers are said to provide smooth operation of the meat table. All parts coming in direct contact with food are stainless steel or nickel-chrome plated.

A second new item from *U. S. Slicing Machine Company, Inc.* is its Model 703 Tenderizer, which is designed to make all boneless meat more tender, more attractive, faster to cook, and faster to sell. The machine may be used to produce tasty, tender steaks from flank, chuck, shoulder, neck, plate, shank, or round, according to the manufacturer.

Low caloric content with high protein value is promised by *Archer-Daniels-Midland* in its booklet, "Soy Flour—Compliment to Modern Eating," prepared to point out to the food industry the advantages of using soy flour. In addition to protein, soy flours are important sources of vitamins, minerals, lecithin, carbohydrates, and minerals. Because of its hydrophilic nature of absorbing and holding moisture, finer textured products with better toasting qualities and more tender crusts and crumbs are possible, with less staling. The U. S. Agricultural Marketing Service reports a potential market annually of 77 million lb. soy proteins in institutional feeding, giving administrators a chance to improve both budget and dietary standards through the use of low-cost soy flour, grits, and flakes.

To save space and steps for countermen, *Allmetal Food Equipment Corp.* has offered a new sandwich unit. Constructed of stainless steel, this new unit is available with or without bread cabinet and toaster space. It is one of Allmetal's "Go-Together" line of equipment which features interchangeable units that may be combined in many variations with equipment stands, salad dessert cases,

New

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TASTES LIKE SALT

New Neocurtasal embodies the characteristic tang, grain and texture of regular table salt. Now whether food is seasoned by New Neocurtasal or salt — few patients detect the difference. Insipid dishes are rendered more palatable, tiresome diets less exacting.

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Lists over 100 of the most popular items being served in institutional feeding today. Baked goods, including icings and meringues, beverages, desserts, meat dishes, soups, preserves, marmalades and fruit butters, salad bases — even special diet foods. No up-to-date, cost-controlled kitchen should be without it. Sent promptly—*while supply lasts*— without obligation.

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HABITANT SOUPS *now available in institutional size cans!*

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refrigerated wall bases, or other food service units for use in back-bar or counter-line-up.

A three-day workshop for school lunch managers, salesmen, and factory personnel of *Market Forge Company* was held in Everett, Massachusetts. Taking a first-hand look at plant performance and exchanging ideas about methods and needs, the group witnessed the preparation of a dinner by two of its members using a Market Forge combination steam cooker and kettle. The demonstrators were able to boil 15 doz. eggs in 15 min. Use of the unit eliminates lifting and heating of large kettles of water and constant watching is unnecessary. The purpose of the meeting was to demonstrate to the school lunch managers the advantages of steam cooking.

Market Forge Company has announced a new combination unit of steam cooker and kettle with integrated plumbing which means tiled curbings and special recessed areas are eliminated. The two-compartment steam cooker and 40-gal. kettle unit has a swing drain to the kettle allowing discharge of cleaning water and other waste liquids to the single drain line. Because of the drain design, the combination unit requires only three connections for installation and may be installed any place in the kitchen. A heavy duty, tubeless boiler, which is directly connected to both steam cooker and kettle for instant action, will bring 40-gal. water in the kettle to a boil in 30-min. A low working height of the table permits convenient ladling, and a special swing faucet is built-in for easy filling.

Cereal Institute, Inc. has released a new booklet, *A Summary of the Iowa Breakfast Studies*, which recapitulates the findings of research reported in twenty scientific papers from 1949 through 1956. This summary, published for permanent and future reference, replaces reprints of the individual papers which are no longer available.

The Borden Company's newest booklet, "Milk . . . A Food for Folk of All Ages," contains information about the food values and physical characteristics of fluid whole milk. Each of the food values plus each of the vitamins that milk provides is discussed separately. A chart giving the composition of pasteurized milk is included.

The *Alfred Brundage Co.* has added a self-service faucet on its ABC automatic coffee creamer which is designed for either self-service or counter-service and permits an operator or customer to set the pointer and draw a uniform flow of creamed coffee—regular coffee, light coffee, or black coffee. The ABC automatic coffee creamer serves up to twenty-five cups of creamed coffee per minute.

A set of twelve recipes featuring the use of *Standard Brands'* new Royal Soup Bases with chicken or beeflike flavor is now available from the company's Institutional Department. All recipes are on 8 by 5 in. cards, with the name of each dish in large type in the upper right hand corner for easy filing and finding. On the back, space is provided for cost records. The recipes included are: scalloped chicken and rice with mushrooms;

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Less stooping, less walking, more cooking when you use free vertical space with BLODGETT Ovens

Compared to standard range ovens, Blodgett gives your kitchen twice* the oven capacity in the same space . . . and all at convenient height. 70% of your menu is cooked in one place by a single unit which bakes, roasts and cooks at the same time. Both your cooks and your floor space produce more efficiently. You profit in every way. Select the Blodgett Oven tailored to your needs now. Just call your Kitchen Equipment Dealer today.

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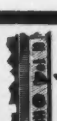

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chicken à la king; chicken cream gravy; savory cream soups; vichyssoise; chicken croquettes; French onion soup; beef goulash; tomato bouillon; brown gravy; vegetable soup; and meat loaf.

High Protein Cereal from the makers of *Gerber Baby Foods* is being nationally released after long research and consumer testing. It was developed to produce more of the easily digested proteins needed by infants and children up to two years. Ready to serve in a minute with warm milk, formula, or other liquid, it provides extra protein. The new cereal has a protein content of 35 per cent derived from a combination of oats, wheat, soy beans, and yeast. It is enriched with added iron, thiamine, riboflavin, niacin, and some calcium and phosphorus. It has a toasted nutlike flavor.

Hoffman-La Roche Inc., has released the fourth edition of an earlier brochure *Processing Frozen Fruit with l-Ascorbic Acid (Vitamin C)*. Brought up to date, it is intended as a guide for the fruit freezing industry, to every freezer of fruit, and to bulk users of frozen fruit, such as jam, jelly, and preserve manufacturers, pie bakers, and ice cream makers. Information is given on methods of protecting the natural color and flavor of more than a dozen different fruits. Processing procedure is described from the selection of fruit, to storage, transportation, and marketing. Specific methods are shown for handling the fruit, and different packs are suggested with tables of weight. A section, complete with tables, explains the preparation of sugar sirups with L-ascorbic acid. An interesting section on the labeling of foods containing additives is given.

Carnation Company is introducing to institutional operators an automatic portion-control dispenser for its dry chocolate drink mix. Designed for use with Carnation "hot cocoa" mix, a pressure of the finger tip on the lever of the dispenser releases the exact amount of mix for a portion. Supplanting the conventional portion control, one-cup packets, the mix can be bought in bulk quantities. It is estimated that a 25-lb. bulk pack of Carnation "hot cocoa" mix will yield 600 servings giving the operator $6.60 more profit than he would realize using packets.

Carnation also is offering for distribution to food service operators the May 1957 issue of its *Carnation Mixer* which deals with "How to Train a New Employee." Humorous cartoons illustrate such points as "Your Investment in a New Employee," "Time-Tested Formula for Training," and "The Problem of Retraining."

The *Habitant Soup Company* has entered the institutional market by making available its line of French-type soups in condensed form in No. 5 cans. Traditional Habitant quality has been carefully preserved in adapting consumer-size recipes for the institutional use. Five of Habitant's most popular flavors have been selected to introduce the soups to the institutional trade: French-style onion soup; Quebec French-style pea soup; chicken with noodles; chicken with rice; and hearty vegetable soups.

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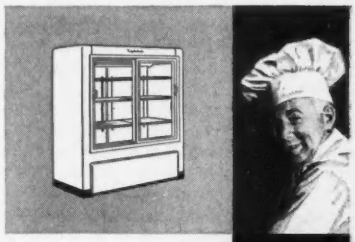

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are ideal for institutional use, providing consistent year-round top quality real fruit flavor—at half the price.

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CRAMORES CRYSTALS
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